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TRANSACTIONS

OF THE

Essex Agricultural Society,

FOR THE YEAR

1861.

PUBLISHED BY ORDER OF THE SOCIETY.
DECEMBER, 1861.

SOUTH DANVERS,
CHARLES D. HOWARD—PRINTER—WIZARD OFFICE
1861.

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ADDRESS,

BY HON. ALFRED A. ABBOTT, OF SOUTH DANVERS.

Mr. President and Gentlemen of the Society:—

Since your last public festival, another year with its rolling seasons has passed away, and again we are gathered together, to hold friendly communion, to witness the result of each other's new experiences, to exchange congratulations upon what has been accomplished, to gather fresh courage for futnre labors, and reverently to acknowledge and devoutly to thank that kind Providence, which, sending the sunshine and the rain alike upon the just and the unjust, has smiled upon our efforts and has crowned all with his blessing. We meet to-day under circumstances peculiar and unparalleled in the history of this Society, now celebrating its forty-fourth anniversary. To be sure, all Nature is the same,—in none of her great operations has there been any change. No earthquake has shaken, no famine scourged the land, no pestilence has walked in the darkness or wasted at noon-day. The seasons have come and gone in their appointed order. Seed time and harvest have not failed. Upon the hills and valleys, the fields and meadows, which, when we last met, were rejoicing in the ripening crops, and from which our barns and granaries were plenteous-

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ly filled, descended as of old the white frost and mantling snows of winter. Then came once more the welcome spring, with its warm south winds and gentle rains, and swelling buds, and fresh verdure upon the hills, with all its new and wondrous birth of vegetable life, till the summer's sun poured out its full effulgence to nourish the labor of man and ripen the fruits of the earth,—and until now again the autumn, in all her golden pomp has come, bearing in her bounteous arms the varied products of the soil, to reward the labors of the husbandman and to gladden the hearts of the sons of toil.

But while nature has thus been the same, unvarying, beneficent and true, in the political relations of men, in public affairs, a fearful revolution has sprung up, and is now in mid and mad career. Instead of being at peace with all the world, instead of living in harmony with each other, the United States are involved in a bloody war,—and worst of all, a war in which those who for so many years have dwelt in prosperity and happiness together, are contending with and have turned their swords against each other. It is a war in which are involved two momentous issues, perhaps the most momentous which have ever been staked in any struggle since Christian civilization began. The *first* issue is, whether the experiment, the last, greatest, best experiment of a free government, is a failure or a success; whether the hope of the world, the desire of ages, for which patriots in all times and in all lands have struggled and died, a Free Republic,—so vast in extent and rich in resources as to wield imperial power, so based upon justice and truth, imbued with knowledge and morality, and actuated by virtue and honor, as to exercise that power for the benefit of mankind,—whether such a republic can exist and survive, and go on culminating in glory and might, and be for a light and a joy to all the nations, or whether it must follow in the sad train of barbarous kingdoms and despotic powers, and like the dynasties which survive only in their crumbling ruins, go out in anarchy and blood. This is the issue in which all Christendom is interested.

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The *second* issue is involved in the first, but it is one which more immediately concerns ourselves. Our fathers, who came to this western world to enjoy religious liberty, soon and naturally imbibed in its exercise the idea of political freedom. And when they and their children found the yoke of kingly power oppressive and galling, they declared, and fought for, and established their independence as a nation. And then, with calm deliberation, seeking wisdom from the past, planning blessings for the future, and ever while acknowledging still imploring aid from above, they proceeded to frame a constitution and ordain a government,—the Constitution and Government of the United States of America. Under these the Republic has gone on, steadily, rapidly, expanding its borders, developing its resources, increasing its power, the intelligence, moral culture and refinement of its people, keeping pace with its material growth, its manufactures and arts rivaling in skill and beauty the productions of the old world, its agriculture not only sustaining its own vast population, but sending of its abundance to foreign shores, the sails of its commerce whitening every sea, and glistening over waters which the keel of no adventurer ever before ploughed, its navy upon the ocean, its army upon the land, bearing aloft its proud stars and stripes through storm and battle to triumph,—until, by all the world no nation was more respected or admired, until through all the world there was no nation whose people were more prosperous and happy.

In the midst of this sunshine came the storm. Almost from the clear sky fell the thunderbolt. No foreign foes assailed us,—but in our very midst, led by those who had enjoyed the highest honors and emoluments of the Republic, sustained by those who had been nourished by its bounty and had received its choicest benefits, there sprang up as in a day, matured, full-grown, full-armed treason and rebellion. Their avowed purpose was to subvert the government, and to destroy the union of the States. To this end they have violated their oaths, have plundered the public revenues, by cunning and

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fraud, or with a strong hand, have seized arsenals and forts, have marshaled vast armies, have fought sanguinary battles, have wrought misery and ruin and death, have wasted and desolated the land,—until now the solemn question is, and this is the *second* great issue, whether we are any longer to have a government, and with power to enforce its laws and protect its subjects,—whether the institutions which have thus far secured to us such moral and material blessings are any longer to shield, protect and preserve us,—whether the Union, hitherto our pride and strength, and the only certain security for our progress and prosperity hereafter, is further to endure,—or, whether, on the other hand, our very national existence is passing away, and with it all that has made our American citizenship so prized and dear to us,—whether, torn and rent asunder, we are for the long dreary future to be embroiled in strife, and lasting wars are to dwarf our civilization and blast our very life,—whether, in fine, we are to be domineered over and trod under foot by rebels and traitors, and mad ambition, and cruel selfishness and unreasoning hate are to engulf alike the cherished memories of the past, the treasured realities of the present, and the once fond hopes for the future, in one common ruin.

Such are the issues involved in the war which is upon us,—a war which has given new color to all our thoughts and new form to all our actions,—which has filled the land with martial spirit and the air with the strains of martial music,—which has put to flight the well-nigh settled ideas of the beauty of peace, and has smoothed and made glorious the rugged front of war,—which has almost displaced the waving grain and tasseled corn with serried ranks and bristling bayonets—which from town and country, from workshop and farm, from field and fireside, from shop and study, from all pursuits of life and all ranks of society, has sent forth armed hosts to fight, and, if need be, to fall in defense of what our fathers fought and fell to establish, and to transmit unimpaired the rich legacy they bequeathed to us.

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Gentlemen, it is in such a crisis that we have assembled to-day. In such times and under such circumstances, it was to me as impossible, as, in my judgment, it would have been improper, not to take at least passing notice of what at home is stirring society to its very depths, and abroad is agitating the whole political world. Wherever men meet together, it is the uppermost thought. In the marts of trade and upon the exchange, men of business anxiously talk of it, and with suspended breath eagerly watch for the first spark of new intelligence that comes flashing along the electric wires. In schools of science and in academic halls it mingles with studies severe and polite, directs inventive thought to new and more terrible instruments of carnage, dwells with delight upon those bursts of eloquence which in ancient and modern times stirred the souls of men to heroic achievements, and teaches poetry to leave soft Dorian measures and sing the inspiring strains of martial lyrics. Even to the house of God it goes with the devout worshipper, and as he lifts his soul in praise, and with the minister at the altar offers up his humble prayer, patriotism mingles with devotion, and the blessing of Heaven is invoked upon our national cause.

Met together, then, as the farmers of Essex County, whose fathers, leaving the plough in the furrow, rushed to the first conflict for independence, throughout the struggle were truest and bravest, and when victory was won, took no humble part in organizing the institutions we are now striving to maintain, should we not, as their sons *why should we not* pledge ourselves anew to the Union they established, swearing eternal fidelity to its friends, eternal hatred to its foes? Born and bred amid scenes and under influences which nurture a sturdy independence, drawing life and strength from the very soil and breathing the free air of heaven, it is upon the *husbandmen*, the *farmers*, that the country and the cause must in their last great exigency depend. It was Cincinnatus, who, in the days of the old Roman Republic, was called from his work in the field to lead the new levies to the deliverance of the beleagured legions,

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the conquest of the enemy, and the salvation of the city. It was William Tell, who, amid the snow-clad summits of the Alps, shot the bolt which rallied the peasants of Switzerland, and redeemed their land from the thraldom of Austria. It was the sturdy, praying yeomanry of Huntingdonshire and Cambridge, who, under Oliver Cromwelll, filled the invincible ranks of the Ironsides, and who at Marston Moor and at Naseby clove down the plumed cavaliers of King Charles, established the Commonwealth, and gave to English history one of its brightest pages. It was Washington, and Putnam, and the farmers who followed their lead and stood by them through the war, and "whose bones now lie mingled with the soil of every State, from New England to Georgia," who fought and won the battles of the Revolution. And so now it must be, and is. All honor to the mechanics and artizans, to those who from the busy marts of trade, from the patient toil of workshops, have rushed to the rescue; aye, all honor to the scholars, the professional men, the gentlemen of wealth and leisure, who have thrown aside their books, abandoned lucrative employments, left quiet and luxury, and have grasped the sword in defense of the right; but honor, above all, to the hard-handed tillers of the soil, who in the great West, the North-West, and North,—who everywhere in the loyal States, have gone to swell the ranks of the army of freedom,—our sons, our brothers, our friends, our defenders, who are fighting manfully in our behalf, and who, with God's blessing, are sure to conquer. Let us give them our aid, our sympathy, our prayers. Let us stand by them till the last battle is fought and the last victory is won. Let us, discarding all thoughts of compromise with armed rebellion, trampling in the dust all cowardly emblems of inglorious peace, stand by the Union and its defenders, till the Star Spangled Banner shall again wave in triumph over a peaceful, re-united and happy land.

Gentlemen of the Society: In accepting the invitation to address you on this occasion, I had a right to assume that you would expect from me none of those practical lessons to which

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you have been accustomed to listen, but that you would be content to hear any such general suggestions bearing upon your great interest as might naturally occur to an outside observer. With this understanding between us, and proceeding to fill up my allotted hour, let me first call your attention to the thought which the peculiar circumstances of the times cannot fail to impress upon all, the supreme importance of agriculture as developed and illustrated by a state of war. During the active lifetime of the present generation of farmers, we have, at home at least, lived in profound peace. During this period, although agriculture has flourished, and great progress has been made in the efficient means of farm labor, in the improvement of the soil, in the profitable adaptation and raising of crops, and in the breeding of stock, yet it cannot be denied that in commerce, manufactures, and the mechanic arts, there has been still greater progress. Although commerce is but the interchange of the superfluous products of different regions and climes, and manufactures and the arts but manipulate and turn to use the raw material which the earth supplies, and so agriculture is the basis of all, yet the fountain has seemed of less importance than the streams which flowed from it, the superstructure has overshadowed the foundation. How is it now? Commerce and manufactures, (I speak, of course, in general terms,) are paralyzed. The ships lie rotting at the wharves, the work-shops are deserted, the hum of machinery is stilled, the occupation of the merchant, the manufacturer, the mechanic, is gone. The operative, the artisan, even the fisherman who from the stormy sea has drawn up subsistence and wealth, all in vain seek for their accustomed labor,—and without work, without wages, they see cold winter approaching, and actual want almost staring them in the face. In this emergency, where, and to whom, are all thoughts and all eyes turned? *To the farm and the farmer.* Plough more acres, plant broader fields, raise larger crops,—such, months ago, was the universal cry, and from one end of the land to the other the exclamation was, it is upon our farms and our farmers that

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we must rely; they must provision our vast armies, they must feed our hungry poor, they must carry us through the war. And to that cry for help there has been no slow or feeble response. Most nobly has the exigency been met. We have as yet no statistics to instruct us; but it will undoubtedly hereafter appear, that never before in our history has such breadth of land been tilled, or such a variety and extent of produce been raised. Meanwhile there has been plenty for home consumption, the vast demands of the army and navy have been promptly met, and there has been no sensible diminution in the supply for foreign export; and the country has shown that even when rent with dissensions and civil war, and shorn of a part of that strength which exists complete only in union, it can not only maintain itself, but help feed the less fortunate portions of the world. And thus we have a new and most emphatic illustration of the truth, that the real strength of a nation, its support in peace, its reliance in war, the only sure safeguard of its prosperity and power, is to be found in the wide extent and full development of its agricultural resources. And thus, too, at once the great problem presents itself, how shall agriculture be encouraged and promoted, and how shall men, the right sort of men, men of talents and of means, be induced to engage in, to elevate and extend it? The ready answer is, By making it *more profitable* and *more attractive.* And this response, though twofold in form, is in reality a unit, for the more profitable farming becomes, the more attractive it will be,—while whatever tends to make it more attractive will be found in the end to conduce to its profit. It is of little use to declaim about the dignity of labor and the nobility of the soil. In some sense it is all true,—but for any practical purpose it is of little value save as a rhetorical flourish and to round a period. The great question in regard to this, as in regard to all other occupations, is, *Will it pay?* Men, however they may fight for glory, will not dig for a name, or delve and toil in the earth as a matter of sentiment. While they have a living to earn, and children to feed and clothe, and old

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age and a rainy day to provide against, they look for profit, and demand a pecuniary remuneration for their labor.

But how shall farming *be made* more profitable and more attractive? It is the old question, which in one or another form recurs and is discussed on every occasion like the present, and the full answer to which would cover the whole field of theory and practice in agriculture. Upon such a field, where so long the highest science and the deepest skill have been exercised, I have not the temerity to enter. The most I can do is, lingering upon its borders, to attempt to glean a few scattered sheaves where others have reaped so rich a harvest. Perhaps a few suggestions, having some bearing upon the general subject, and possibly not altogether unprofitable, may be grouped together in a brief consideration of the question—*How should farmers' sons be educated*—how should the rising generation of farmers be reared?

In order to insure success in any department of life or labor, there must by the previous suitable preparation and training. If a lad is intended for one of the professions, so-called, he starts with that understanding. There is from the outset *method and system.* He is put to those exercises which it is believed will best discipline his mind for the particular labors he is to perform. All those means and appliances are brought to bear which can aid in developing the faculties and powers upon which hereafter he must mainly rely. The whole field of his future is brought and kept before him, so that all through his preparatory course he can have in view the goal for which he has set out. And if, after all, he fails, as many do, (for it is hardly necessary to say that there are incapable lawyers, unskilful physicians and inefficient ministers, as well as thriftless farmers,) the fault is in himself, and not in the system. So, if a boy is intended for mercantile life or some mechanical pursuit, he is trained for that life or pursuit, and his training begins with the knowledge on his part that he has entered upon what is to be his future, permanent occupation—that he has embarked upon the voyage of life, and as he steers his course

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and trims his sails, so will come success or failure. Henceforth he has one governing thought, one aim, and to that everything is subordinate. From the first, everything tends to give him a full and clear idea of his chosen business, its duties and its difficulties, and what he must do to secure its amplest rewards and achieve its highest triumphs.

Now, how is it with the education of farmers? There are exceptions, of course, but not enough to disturb the general rule. The farmer sends his son to the village school, where he learns to read and write and cypher. He is set to do the light chores about home, until, gaining in strength, he is put to harder tasks. As he grows up, he learns to plant, to mow, to harvest, to perform the ordinary work of the farm, but only in the way he sees his father perform these labors. He may or may not observe the rotation of crops, the application of particular fertilizers, the production of certain results, but if he does, he knows not, thinks not, of the reason of the thing. To all intents and purposes, he is performing a mere mechanical task. Whether or not *he is to be a farmer*, whether that is to be the business of his life, remains undetermined. Neither he nor his father have come to any settled understanding upon this. Like Mr. Micawber, he is waiting for something to turn up,—some opportunity to go to the city, to go to sea, to go into trade,—but all the time with mind unfixed, with no clear purposes, no distinct aims. If he remains upon the farm, and becomes a farmer, the chances are that he does it from the force of circumstances, and because that seems to be the only resource left him, and not from choice. And then he goes on as he began, and as his father has gone before him. Now what is needed is, and it is of primary importance, that the young novitiate for farming should be trained to his business, *with the understanding from the first that it is to be his business*—one in which he is to earn his living and acquire a competency, one in which, from the start, he shall be spurred on by the laudable ambition to excel and make his mark. Why should there not be in this the same method and system as in other em-

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ployments. Why should he not begin with the idea which is to control his course, so that every effort and every experience may be made to tell in his general education and to bear upon final results. The boy upon the farm, who is to be a farmer, when he has had the proper rudimentary education of the schools, should commence his profession in earnest, knowing and feeling that he has commenced it. If he is put to any particular farm-work, he should understand why that work is to be done, and why at that time, and if told to do it in a particular way, he should understand why it is to be done in that rather than in a different way. He should be led to inquire the reason of and for everything, to think and judge, to read and study, to learn theory and practice together, and test the former by the latter. In this mode, and in this only, can he commence his career with the same advantages which attend the young man entering upon any other kind of business. It is generally the first step in life which gives direction to its whole future march. It is the resolution early formed which imparts courage to youth and strength to manhood. Let the young farmer but have a fair start, and he need not ask any odds.

In the next place, and of equal, and perhaps greater importance, the young man who is to become a farmer should at once feel and realize that the occupation upon which he is entering is not a mere mechanical routine of labor—that while it is one which may require severe physical toil, it also calls for and demands the exercise of the highest intellectual faculties. How absurd is the idea that the brightest boy in a family must be sent to school and college, and trained up as a merchant or professional man, while his brother, not thought fit for anything else, will do to make a farmer of. While the father thinks so, the sons of course imbibe the same notion, and this shallow fallacy of thought hardens into real and disastrous fact —and the result is, that just what is most needed to encourage, improve, ennoble this great fundamental art and science of life, to wit, *intelligence, mind,* are withdrawn from it to be

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expended upon other pursuits. And this idea so acted upon, while it tends to draw many of our best young men from the farm, has also this bad result, that it depresses and discourages those who are left, and leads them to believe that farming is mere drudgery,—that they must work harder, fare poorer, be worse paid, and pass less pleasant and happy lives than their fellows who pursue other employments. Now, do you believe that God put man in the Garden of Eden, "to dress it and to keep it"—that from thence he was sent forth "to till the ground," and was told, "in the sweat of thy face shalt thou eat bread till thou return unto the ground."—that in his providence it was ordered that the great majority of mankind should cultivate the soil, while the whole race should thus be fed—that to the moral, political and social elevation of man, as well as to the full and healthy development of his physical powers, agriculture should be necessary and essential, and yet that it should give no scope for the exercise of his intellectual faculties, of that "living soul" which he became when God "breathed into his nostrils the breath of life?" No—here, as everywhere else, "wisdom is strength and knowledge is power." Why is there such a difference—what causes the disparity in the condition of farmers? Why are not all alike prosperous? Why is it that this farm is fertile and productive, and its owner prosperous and happy, while the one which adjoins it is sterile and unfruitful, and its owner an unsuccessful and disappointed man? There is no natural or irremediable difference in soil or climate. There is the same health and strength and muscle in the men. The sun shines as genially, the rain descends as seasonably, the dew falls as gratefully for one as for the other. It is because in addition to more diligence and economy, and perhaps to more industry, one brings to his work more judgment, more intelligence, more mind, than the other.

The farmer should be the last man to have inadequate conceptions of his mission, the last to disparage it. As a man thinketh so he is, and so will he do. "*Possumus, quia posse*

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videmur." We are able when we have faith in our ability. If farmers generally consider their calling ignoble and low, that it is mere bodily toil, a sullen contest of animal strength with inert matter, that they are but hewers of wood and drawers of water, so will it be and such will they become. But if, on the other hand, they have just and true ideas of themselves and their vocation, that it is elevated and ennobling, that not only are they with strong hands to wage successful war against brute forces, but that ripe with intelligence they are to share in the triumphs of mind over matter, then will they and all things around them be transformed. They will walk the earth with a more elastic step. The very grass beneath their feet will wear a livelier green. The blue sky above their heads will bend more brightly. The summer breezes will whisper new hopes. The winter storms will inspire fresh courage. Thinking, reasoning, as well as working men, with cultivated minds and aspiring souls, they will respect themselves and be respected of others, they will dignify and adorn labor, they will feel and know, and the world will see how enviable and exalted is their position, and that with the farmer's lot there is none which can compare for real happiness and solid good.

Having started, then, to become a farmer, not with a sort of floating idea that such may possibly be his permanent business, but, in the first place, with a fixed and well-defined purpose, and, in the second place, with a correct idea of the nature and importance of the business, and what it imperatively demands for full success—the young farmer is ready to go to work, or rather he is ready to learn how to work, to serve his apprenticeship, to fit himself for the duties of life. In truth, this preparation is to last his whole life-time. Whoever has to deal with nature and her processes, is a perpetual learner. He studies in a school whose lessons are never completed, whose teachings have no end. The great forces and the very elements are his instructors. Each rolling year, each passing season, unfold new problems to be solved, new mysteries to be fathomed, and the scholar, as he grows wise, grows humble, for

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he realizes how infinite is the wisdom of the Creator, how wondrous are his ways. And when death ends his labors, and he goes down to rest in the bosom of the earth he has lived upon and loved so long, it is with the humility and yet with the faith of a child, that in another state of being, where the vision will be clearer and the soul unfettered, he will pursue his studies and gain truer views, as he basks in the light of infinite knowledge.

But how shall the young farmer prosecute his work? Of course industry is to be inculcated,—unfailing, never-tiring, which finds for every hour some work to do, and without which nothing can be accomplished. Economy, too,—which allows no waste or extravagance, which saves the little here and the little there, which accumulates, earns, produces, before it spends and consumes, which is the handmaid of industry and the foundation of wealth. Habits of order; also, should be impressed, which for every labor has its time,—which never puts off till to-morrow what can as well be done to-day,—which has a place for everything and keeps everything in its place,—that order or system, which although it may seem more natural to some than to others, is yet the result of discipline, and can be cultivated and acquired by all,—which is as necessary upon the farm as in the office or work-shop, and the practice or neglect of which may be, and often is, the turning point between success and failure.

In this connection, a word upon the keeping of accounts would not seem to be out of place. I do not speak now of farm accounts, technically so-called,—the account which every farmer should keep with every department of his farm, without which it is impossible to calculate the most beneficial mode of its management, and the improvements of which it is susceptible, and which is just as important to him as to the merchant or manufacturer are their complicated books. And yet, if there were time, it would be a profitable theme. For illustration, suppose a farmer should say to his son who is training to succeed him, "Here, take this lot of land, cultivate it, ex-

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periment upon it, do with it and what you get from it as you please, but keep a strict account with it, and from year to year, see not only what you have learned of farming, but how stands the matter of profit and loss. To say nothing of what an incentive this would be to effort, what a spur to youthful ambition, how better could the young man be taught prudence and thrift, while at the same time he was gaining golden knowledge of his art? And thus from this one lot let the same system be applied to all, to the whole farm, whenever he comes to have one of his own. But I was referring to the subject in a more limited view, to the accounts which a farmer should keep of his pecuniary transactions—of his bargains, and purchases, and sales, his dealings with the world. I feel that I have a right to speak of this with some degree of confidence, because it is a matter with which my own professional experience has made me somewhat familiar. I have known instances, and they have not been infrequent, where a farmer, forced to go into court, has been unable to prove an honest demand, simply from his inability to produce an account-book which would meet the easy requirements of the law, and who, besides losing his case, and having to pay a heavy bill of costs to his fraudulent debtor, has gone home mortified at the thought that his neighbors would believe he was in the wrong and his opponent in the right. The looseness which prevails in this matter strikes every lawyer with astonishment. The usual apology made is, that a farmer's dealings are mainly cash, and that he has little occasion to be particular about his accounts. This is comparatively true. But while a farmer is to be encouraged in never buying but for cash, there are times when in selling he must accommodate his neighbor with credit. And so, in this and other ways, it happens that there is not a week, hardly a day in the year, in which there should not be some memorandum made, some charge, some credit, something in the end involving dollars and cents. It is no book-keeping by double entry, no complicated system of accounts that is required. The law in this respect is liberal. An old barn door,

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with its chalk scores, unhung and brought into court, would be allowed to justify a suppletory oath. But barn doors and kitchen ceilings are unsafe and clumsy journals. Paper and pen and ink are much more trustworthy and quite as convenient. All that is wanted is ordinary penmanship, a knowledge of the simplest rules of arithmetic, and that habit of punctuality which will record the transaction at the time of its occurrence. If the farmer is advanced in years, and his hands cramped by toil, let him use the nimbler fingers of his wife or daughter, only let him have the account kept. But let his son, when he begins farming, start fair in this respect, and accustom himself to keep his accounts regularly and correctly. It will not only save him money, it will save him much annoyance, vexation and strife. It may be said that this is a small matter. Be it so. "Take care of the little things, and the large ones will take care of themselves,"—or, as the tradesman has it, and he knows the value of poor Richard's maxim, "Take care of the pence, and the pounds will take care of themselves." It has been said by good authority, "More *profit* is made on a farm from trifles than from the large crops." The sooner the young man learns this invaluable lesson, the better will be his chances of success. The Dutch have a proverb, "No one is ever ruined who keeps good accounts." They will not only enable a man to understand his whole affairs, and avoid being cheated, but their moral effect is important;—they prevent habits of irregularity, procrastination and indolence; they induce habits of order, promptness and industry.

Among those things which attract the attention of an outside observer, there is no one which so excites his surprise as the indifference manifested by farmers in availing themselves of the aids furnished to successful culture by improved instruments of labor and by modern scientific research. Although as to the former, there has, of late years, been a great and growing change, and men who but recently looked with distrust and aversion upon what they called new-fangled inventions, will now cheerfully use, and, if they cannot afford to buy, will hire

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one and another of those valuable labor-saving implements, which are doing so much to facilitate the operations of the farm, yet there is still room for progress. In this matter the young farmer should begin with the right ideas. While he listens to the advice of his elders, and pays due respect to their example as well as precept, he should guard against becoming the slave of old prejudices, and should observe, and judge, and act for himself. To say that because his father before him managed to cut and cure and get in his hay with a scythe and fork and hand-rake, therefore there is no need of his using a mowing-machine, a tedder, or a horse-rake, is just as absurd as it would be for him never to ride in a rail-car, wear a cloth coat, or eat flour bread, because his grandfather jogged along on horseback, was comfortable in linsey-woolsey, and didn't starve on rye and Indian. Of course he must exercise prudence and caution, and neither go beyond his means nor lightly adopt every new contrivance, simply because it is new. But on the other hand, let him studiously avoid that spirit of distrust which looks with suspicion upon every departure from old usage. Let him, with eyes wide open to see, and mind open to conviction, carefully observe and narrowly watch, and then adopt whatever full experiment by individuals or associations has proved to be advantageous and profitable.

I spoke of scientific research. I have no disposition at this late stage to exhaust your kind patience with a disquisition on *scientific farming*. But let me say, that we lookers-on cannot understand this prejudice which exists among farmers against the application of science to agriculture. Why, what is agriculture but a science, both a science and an art, whose birth was coeval with the birth of man, whose growth has been measured by the progress of civilization, and whose perfection will not be attained till the race shall have reached its millenial state. Every manufactory has its chemist, every art and trade modifies and adapts its operations to come within the sphere of new discoveries and fresh developments. If a shipwright builds a vessel, if a carpenter frames a house, if a miner embowels the

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earth, if a tanner turns skins into leather, if a machinist makes a steam engine, if a cunning workman fabricates and puts together a watch, if an optician constructs a telescope, the last disclosure of science guides his hand and moulds his work—and why should not the farmer bring, to alleviate his hard toil, and make more exuberant the fruits of his labor, whatever aid science as well as art can furnish? There is a wide distinction between *fancy* and *scientific* farming. A man comes into the country from city or college, and sets out to be a model agriculturalist. He buys a place, pulls down all the old structures and builds a small palace. He erects a greenhouse, and hennery, and piggery, and buildings for his cattle, which surpass in their appointments the habitations of decent people around him. He imports at fabulous prices foreign stock which he knows not how to use or raise. He buys whatever in the way of implements or tools is advertised as new, without knowing whether they are good or bad. And then he gets his books, and without previous experience, and spurning the advice of old cultivators, he sets up for a gentleman farmer. For a year or two he runs on swimmingly, makes a great figure, throws into the shade his humble competitors, and then, as might have been expected, he miserably fails, and a sheriff's auction closes the scene. And his neighbors cry out, "So much for your *scientific* farming!" It is no such thing. It is *fancy* farming.

Now look upon another picture. A gentleman (he may or may not have had early practical acquaintance with farming, but he has good sense and sound judgment), with resolute mind and purpose, and in gratification of long cherished wishes, devotes his attention and wealth to agriculture. He proceeds carefully and systematically. He has taste, and he makes his place an object of beauty as well as utility. His buildings are ornamental as well as useful. His fences are both handsome and durable. His fields are clean as well as fruitful. If there is an unsightly bog, he reclaims it and makes it fertile. If there are impoverished acres, he studies and experiments, and finds what elements are lacking, and supplies them. If, upon

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trial, he ascertains that his lands will not profitably raise certain accustomed crops, he rotates, and finds those which will yield remuneratively. His tools and implements are the best, and therefore the most economical. If the stock upon the farm is poor, he learns by inquiry and research what breeds are most prolific and hardy, best fitted for labor and for market. He eagerly avails himself of the practical experience of those around him, but at the same time he studies books and seeks the aid of science. From geology he learns the origin, nature and composition of soils,—from chemistry to analyze and improve them, the condition requisite for the most perfect growth and maturity of vegetation, and the mode of preparing the best fertilizers,—from botany the structure and habits of plants, and what soils and modes of treatment they demand,—from zoology those laws by which the re-production of animals is regulated and their highest perfection attained,—and so, from all the natural sciences he gathers knowledge and applies it in his daily tasks, till complete success crowns his efforts, till the former waste becomes a garden, until what was once a wilderness is made to bud and blossom like the rose. This is *the scientific farmer*. We have such in this county. We have them in this town. They are efficient officers and members of this society. They have striven hard to promote its welfare and extend its usefulness. They are in our midst here to-day—men whose talents, and wealth, and social position might give them public eminence and honor, but who, as exemplars of progressive agriculture, are doing more good than though they were conspicuous in public councils, or were ruling the storm of debate in legislative halls. Let the young farmer emulate such examples. Let him understand that to keep up with the times, he must read and study,—that to become entirely successful, he must add to industry and economy and toil, science and skill. In no other way can he excel, in no other way can he improve his art and benefit his fellows. Our soil is not only comparatively poor, it is impoverished and worn out. Science and skill, and they alone, can restore its exhausted powers—

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and they can. They can make it as productive as Western prairies or Southern valleys. There is no reason why the agriculture of New England should not rival that of Old England. There is no reason why Massachusetts should not feed her whole population. To make her truly independent she should do so. The responsibility rests upon the rising generation of farmers. Let us hope that they will cheerfully assume and nobly discharge it.

A few words, and but a few, upon one other topic, and I have done. You may call it, if you please, æsthetics, poetry, sentiment, by what name you will, but it is a subject upon which, if I had felt at liberty to follow my own inclinations, I should have filled my whole discourse. The young farmer will mistake his mission who makes that an end which should be but an incident or means. He may grow rich, may add barn to barn, and acre to acre, but if he neglects to wreathe the brow and soften the hands of labor with refinement and grace, his whole life will be a failure, and his example a wrong. Farming must be made attractive—and though its profitable exercise will tend to this, yet if, through the want of other attractions, it does not gain the right class of recruits, it will soon cease to yield profit. Is not our farm-life too rugged and harsh? Has it sufficiently recognized the amenities of life? Has it adequately encouraged social culture and delights? Has it not deemed exclusive devotion to labor as indispensable to success, frowned upon whatever interfered with unremitting toil, and grudged the expended mite which would have added to its hoards? Has it not looked upon the exercise of taste, the gratification of the eye, the love of ornament and beauty, as something foreign and out of place, and recognized nothing as desirable or useful which would not pay in dollars and cents? Such, at all events, has been the prevailing tendency—and in it is to be found the great secret of that aversion to farm-life which "has taken directly from our farming population its best elements—its quickest intelligence, its most stirring enterprise, its noblest and most ambitious natures." Let the young

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farmer, then, begin life aright. Remembering the well established fact of physiology, "that hard labor, followed from day to day and year to year, absorbing every thought and every energy, has the direct tendency to depress the intellect, blunt the sensibilities, and animalize the man," let him be sure to cultivate the mental, moral and social nature. Let him feel that "his farm has higher uses for him than those of feeding his person or his purse." As he looks out upon his green meadows and waving fields, as he plants the brown seed and gathers in the golden harvest, as he listens to the song of birds, the lowing of herds, the sweet hum of animated nature, as he sees the morning sun rise to gild and gladden the earth, and the evening shadows falling longer from the hills,

> "And then the moon, like to a silver bow
> New-bent in heaven,"

and the

> "Earth-treading stars, that make dark heaven light,"

coming out to rule and glorify the night, as in the spring-time he watches the ever-recurring but ever great mystery of nature, and when the winds of autumn wail in mournful cadence, muses upon the decay of nature, less mysterious but more solemn than its bursting life, let him remember that he is one of God's creatures, but created for glory and honor, entrusted with an earthly mission, but required hereafter to render an account of his stewardship. Let him think of his family and his home—of his wife and children,—she, the choice of his youth and the solace of his manhood, who, in travail and pain has borne *them* to him, and *they*, who are to cheer and support his old age, and transmit and bring honor to his name. Let him make his and their home pleasant and cheerful. *Without*, let it be grateful to the sight, and delightful to the memory. Let there be the smooth, green sward upon which the shadows come and go, the clean-swept walk, the neat, white paling, the blooming and fragrant flowers, the climbing vine upon the

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rustic porch, the graceful trees which shade from sun and shelter from the storm. *Within*, let it be the abode of domestic joys and cultivated life. Let it have some sacred retreat, where labor shall forget its irksome tasks,—where tired nature shall find sweet repose,—where everything shall charm the ear, delight the eye, or gratify the mind,—where shall be comfort, propriety and refinement,—not needing luxury or wealth, but only "that unbought grace" which neither gold can buy nor station give, and which may breathe alike around the rich man's stately mansion and the poor man's humble cottage. Living thus, with trust in Heaven, with nurturing care for the dear ones upon the earth, seeing God in nature, and recognizing labor and its rewards as but the means and not the end, the farmer will lead another and a higher life. Existence will have a new meaning. There will be for him new heavens and a new earth. Drought, and mildew, and blight may come, but hope and happiness are left. He walks through life, it may be amid storms, beneath clouds, surrounded by misfortunes, beset by carking cares, yet seeing forms of light in the gathering darkness, and drawing joy from out the very gloom.

> "The meanest floweret of the vale,
> The simplest note that swells the gale,
> The common air, the sun, the skies,
> To him are opening Paradise."

Gentlemen of the Society—Farmers of Essex: In what pleasant places have your lines fallen to you—how goodly is your heritage. It is not alone an occupation, healthful, profitable and useful; it is not alone a home, pleasant, comfortable and refined; it is not alone an ancestry, the record of whose pious deeds and heroic lives is far dearer than would be the proudest escutcheon of heraldic vanity; it is not alone a County, populous aud rich, washed upon one side by the bounding waves of the Atlantic, traversed by beautiful and fertilizing streams, diversified all over with lake and forest, and swelling hills and teeming vales, with all the great material interests of

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life—commerce, trade, manufactures, the arts, alike with agriculture, developed to full exercise within its borders; it is not alone a Commonwealth, rich in historic memories, as in the enjoyment of all that liberty under law can give to man, with institutions, unequaled in their beneficence, and which have wrought out a higher civilization than history ever before knew —it is not these alone. It is a Country, a Nation, our Dear Native Land—whose Government, whose Union, whose Constitution, whose Laws, are our only safeguard and defence,—which brought us out of bondage, which protected our weakness, which nourished our strength, which made us a prosperous and mighty people,—and which, under God, can deliver and save us, and giving us renewed happiness and greatness, can enable us still further to benefit and bless mankind.

Fellow Citizens, that country, that nation, that government is in danger. Perhaps while I speak, the cannon of the enemy are thundering at the gates of its Capitol. Perhaps while you sit here, our brave soldiers are pouring out their blood in the long expected battle which is to determine between loyalty and treason, between falsehood and truth. To determine, did I say? No!

> "For freedom's battle once begun,
> Bequeathed by bleeding sire to son,
> Though baffled oft is ever won!"

Again they may win a temporary success. They may even storm and capture the city which the sacred name of Washington should protect from vandal hands, shot and shell may demolish its marble halls, fire and sword and pillage may destroy its archives and ornaments, but still the Nation will live on, still shall the Union endure. It was established in righteousness, it has arisen in honor, and the Almighty God is its guardian and guide.

Fellow-citizens, how paltry now seem all minor considerations, all views of individual, or local, or temporary good. It is our Country which calls. Religion, patriotism, pride, self-

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interest, all alike prompt to energy and effort. Let us each do our humble part. Let us give freely our means and our strength. Let us, if need be, beat our ploughshares into swords, and our pruning-hooks into spears. Let us toil and strive, and fight on to the end,—hoping, praying, believing, that in God's good time it will come, and that amid all these raging billows, and through the fierce storm and tempest, the Ark of our Safety will ride in triumph.

"Thou, too, sail on, O Ship of State!
Sail on, O Union, strong and great!
Humanity with all its fears,
With all the hopes of future years,
Is hanging breathless on thy fate!

* * * * *

Sail on, nor fear to breast the sea!
Our hearts, our hopes, are all with thee.
Our hearts, our hopes, our prayers, our tears,
Our faith triumphant o'er our fears,
Are all with thee—are all with thee."

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ORIGINAL ODE,

WRITTEN FOR THE

ANNIVERSARY OF THE ESSEX AGRICULTURAL SOCIETY,

BY GAIL HAMILTON.

Now hang up the sickle, the reapers are done!
The warm rains, the soft dews, and the sweet summer sun
Have cheerily wrought with the brawny arms here,
And the Harvest-Moon smiles on the fruits of the year.

Ho! Freemen of Essex! Stout sons of the soil!
What meed to your labors, what rest to your toil,
While the tread of the traitor pollutes the wronged earth,
And Liberty faints in the land of her birth?

Runs the blood of your sires pale and weak in your veins?
Will the ringing of gold drown the clanking of chains?
Will you sit by your firesides and count up your store,
While shame keeps with death, watch and ward at the door?

No! a thousand times No! thunder out on the air,
Here are strong arms to do—here are brave hearts to dare!
The fair vales that thrilled under Putnam's young tread,
Give birth to no dastards—bring shame to no dead.

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By the past that bequeathed us our might of to-day—
By the future that calls up a glory-paved way,
All the strength of our prime, all the fire of our youth,
We joyfully lay on the altar of Truth.

In the sheen of our steel, guilt shall read its just doom.
The breath of the North is the traitor's Simoom!
Flash brightly, sharp steel! Rush swiftly, fierce breath!
And sweep treachery down to the valley of death!

Fling our flag to the breeze! It shall never be furled—
The gleam of its stars is the hope of the world!
With its folds floating o'er us, we gird on the sword,
And go forth to fight in the name of the Lord.

Brave yeomen of Essex! Your field is our Land,
Immortal the fruits it shall yield to your hand.
Match your strength to your day—Sow to God, the good Giver,
And ring out your Harvest-Home once and forever!

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REPORTS, &c.

PLOUGHING—WITH DOUBLE TEAMS.

The ground occupied for Ploughing was part of the field that was ploughed last year, well adapted to the purpose, being rather hard, with pebble stones, which is desirable to test the quality of the plough, and try the skill of the ploughman.

It was also well situated, the land rising on either side, giving the large concourse of spectators an opportunity of overlooking the scene, to whom it must have been very pleasant to see nearly twenty teams of different classes competing for the several premiums at the same time. The work was performed in the most quiet manner, without much effort on the part of the teamsters, by the use of the whip, or otherwise, showing that the teams were well disciplined, and the teamsters (though some of them were quite young) were workmen that need not be ashamed.

We have before said that there were as many kinds of ploughs as competitors, forcibly reminding some of your Committee of the great change that has taken place within their remembrance, not only in the quality of the plough, but the ease with which they can be procured.

Memory goes back to the time when ploughs were not man-

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ufactured by thousands, as they now are, and sold at almost every store. Then, if a person wanted a plough, he first went to the blacksmith and ordered the irons; then carried the irons to the plough-maker and ordered the wood-work; then again to the blacksmith to have the wood sheathed with plates of iron—all the work being usually performed without the aid of steam or water power. Many of them were of inferior quality, although there were ploughs made that would compare favorably in field work with the ploughs of the present day, but more team was required to use them.

There has also been great improvement in instruments for pulverizing the soil and clearing the field crops of weeds. The cultivator, horse hoe and improved harrow were formerly not known. Experience shows, however, that the plough, in the cultivation of the field crops, should not be wholly laid aside. One advantage, however, the cultivator of the soil had in those days—the Yankee boys would perform more labor, hoeing in the field, than the foreigners necessarily employed at the present time.

It is hardly necessary to say anything in regard to the depth of ploughing, as it is generally understood that deep culture is beneficial to the growth of plants. It depends, however, on the sub-soil, on the amount of manure applied on the crops cultivated, and various other things; therefore there is no general rule to be applied, but every cultivator of the soil must be governed by the circumstances in which he is placed.

There were eight entries for premium—but seven, however, appeared on the ground as competitors. The teams appeared in fine order, well disciplined, and performed the work well. The time occupied in ploughing was from thirty to forty-five minutes. As to the ploughs, there were as many kinds as competitors, no two being alike.

The Committee would recommend the following premiums:

1st premium, of $10, to Richard T. Jaques and R. S. Bray of Newbury.

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2d prem., $9, Franklin Alley and Andrew Smith, Marblehead.
3d " $8, Hazen Ayer, South Danvers.
4th " $7, Jacob Farnham, North Andover.
5th " $6, D. L. Goodridge and M. H. Poor, W. Newbury.
6th " $5, Wm. Foster and Joseph Kittridge, N. Andover.

J. Longfellow, of Newbury, ploughed a lot with a Michigan plough, but is not entitled to the Society's premium, in consequence of not having entered according to the rules of the Society. But as Mr. Longfellow has shown himself an expert at ploughing, as he is accustomed to do on like occasions, the Committee would have been glad to have recommended a premium, had he complied with the rules of the Society.

[The above report was amended, by vote of the Society, awarding Mr. Longfellow a gratuity of $5.]

JOSEPH HOW,
BENJ. P. WARE,
DAVID WETHERBEE,
DANIEL MOULTON,
HENRY L. MOODY,
} COMMITTEE.

PLOUGHING—WITH SINGLE TEAMS.

The Committee on ploughing with single teams, would make the following report, viz :—

There were but four entries for premiums. The ploughing was very well done. The time of doing the work varied from forty-three to forty-nine minutes. The Committee have awarded the premiums as follows, viz :—

The first premium, of seven dollars, to Richard T. Jaques of Newbury.

The second premium, of six dollars, to J. C. Newhall of Lynnfield.

The third premium, of five dollars, to Franklin Alley of Marblehead.

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The fourth premium, of four dollars, to Elijah Pope of Danvers.

Respectfully submitted by

JONATHAN BERRY,
JOSEPH F. INGALLS,
JOSEPH GOODRICH,
} Committee.

PLOUGHING—WITH HORSES.

The Committee on Ploughing with Horses submit the following report:—

Seven teams were entered for premium, but five only ploughed. The land selected was better adapted to test the skill of the ploughman and the training of the team, than to show really handsome work. On some of the lots, sharp gravel and pebble stones rendered it impossible either to keep the plough to the required depth, or to turn an unbroken furrow. Yet a part of all the lands were sufficiently free from obstructions to enable the Committee to judge that on smooth, level land, the work would have come quite up to the average ploughing at our shows.

The lots, one-sixth of an acre, were ploughed in from 33 to 45 minutes, quite soon enough for good work.

Most of your Committee thought that if Moody S. Dole, who finished in the shortest time, had not taken quite so wide a furrow, he might have taken the first instead of the second premium.

Your Committee were nearly unanimous in the following award of premiums:—

1st premium, of $9, to Jacob Farnham's team, of North Andover, W. Winslow ploughman; work done with Lion plough, No. 61, in 36 minutes.

2d premium, of $7, to team of Col. Colman of Newbury-

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port, Moody S. Dole, ploughman; Doe's Concord plough, No. 3, in 33 minutes.

3d premium, of $5, to David L. Goodrich of West Newbury; Prouty & Mears, No. 155, in 45 minutes.

4th premium, of $3, to James Cary and Franklin Alley of Swampscott; Lion plough, No. 61, in 44 minutes.

JOHN KEELY,
H. WARE,
HENRY A KING,
HENRY KNIGHT,
EBEN S. POOR,
} COMMITTEE.

WORKING OXEN.

The Committee on Working Oxen, having attended to that duty, would respectfully report:—

There were eleven pair of oxen entered for premiums. All were present and performed their work. There were not as many entered as is usual at our shows.

Your Committee were well pleased with the work of the oxen. Praise is also due to the teamsters, in being so quiet in the performance of their part of the work.

In deciding which oxen were best entitled to a premium, it was a difficult task where all did so well.

As the rules of the Society require the age and weight of the cattle, and weight of load exclusive of wagon, we have inserted below the full particulars of the same:—

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Names of Persons.	Residence.	Age Oxen.	Wt. Oxen.	Wt. Load.
Henry A. Gould,	Andover,	4	2400 lbs	4000
S. F. Newhall,	Lynnfield,	7	3380	6000
Elijah Pope,	Danvers,	6	2760	6000
Richard T. Jaques,	Newbury,	7	2915	6000
Richard T. Jaques,	"	6	3048	6000
Richard S. Bray,	"	5	2815	6000
Joseph Longfellow,	"	4	2130	4000
Samuel Dane,	Hamilton,	7	3070	4000
Hazen Ayer,	South Danvers,	6	3100	6000
William Foster,	North Andover,	5	3000	6000
Joseph Kittredge,	"	5	3425	6000

The Committee awarded the premiums as follows:—

To Hazen Ayer of South Danvers, first premium, $10

To Joseph Longfellow of Newbury, second premium, $8

To Elijah Pope of Danvers, third premium, $6

To Richard S. Bray of Newbury, fourth premium, $4

As the premiums are now offered, no distinction being made between large and small cattle, committees differ in that respect. Some are for all of the large cattle, others for the small cattle, which sometimes causes some feeling among competitors.

Your Committee would suggest the propriety of dividing the premiums, so that the large cattle shall have their share, and the small or younger ones theirs.

All is respectfully submitted.

JEDEDIAH H. BARKER,
S. B. SWAN,
ENOS E. HOMAN,
JOHN N. KENT,
} COMMITTEE.

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FARM AND DRAFT HORSES.

The Committee on Farm and Draft Horses are happy to say, although the minds of the most of the breeders have turned to fast horses, they are pleased to report that all have not turned to speed alone, as was fully proved by the large number of excellent farm and draft horses which were offered for the Society's premiums—*all* of which did their work so well that it was difficult for the Committee to decide which should have the premiums offered.

They award to S. A. Merrill of Salem, for the style, strength, age and travel of his bay mare, the first premium, of $8; and to Nathan Bushby of South Danvers, the second premium, $6.

Nine horses were offered for premium.

WILLIAM OSBORN, Chairman.

STALLIONS.

The Committee on Stallions make the following report:—

Having carefully examined the several horses offered for premium, they decided that no horse presented over four years old, was worthy of the premium,

The premium of seven dollars for the best stallion under four years old, we award to William P. Fay of Lynn, for his stallion "Burnt Brand," sired by Doncaster.

I. OSGOOD LORING,
JONATHAN F. PHILLIPS, } COMMITTEE.

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BREEDING MARES.

The Committee on Brood Mares have attended to the duty assigned them.

Of the thirteen brood mares entered, your Committee find but ten mares with their foals.

Of that number, we have selected Geo. B. Martin's "Lady Danvers" as the best brood mare of all work, with a splendid colt by her side, as worthy of the first premium, of $10.

Daniel Osborn of South Danvers, a large size bay mare of all work, with a good colt, the second premium, of $8.

Lewis Allen of South Danvers, chestnut mare, roadster, and of all work, with a good foal, the third premium, of $6.

The animals awarded premiums are of good size, sound, and well worth the attention of horse fanciers.

The practice of breeding from unsound stock is one reason why we have so many worthless horses in our market. The brood mare should be sound. To say "If a mare is good for nothing else, she will do to breed a colt," is a very great mistake. The brood mare should be free from all defects capable of being transmitted to the foal. To insure good stock, the mare should be of good size and proportion, and have a free and easy gait, and be of gentle and pleasant disposition.

Respectfully submitted,

S. S. MOODY,
JOHN LOW,
WILLIAM SAUNDERS, } Committee.

COLTS.

The Committee on Colts would submit the following report:

The entries under this class were few in number and ordinary in quality.

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The Committee award to Geo. Lucy of Newbury, the first premium, of $7, for his four year old colt, it being the only one entered.

To Jos. N. Rolfe of Newbury, the first premium, of $6, for his three year old.

To T. H. Balch of Groveland, the second premium, of $4.

To Amos S. Hobbs of Wenham, the first premium, of $5, for his two year old.

To John C. Dennis of Marblehead, the second premium, $3.

To Melvin B. Putnam of Danvers, the first premium, of $4, for his yearling colt.

The second premium the Committee did not award.

WILLIAM COGSWELL, Chairman.

FAT CATTLE.

The Committee on Fat Cattle award the following premiums, viz :—

First premium to Joseph Kittredge of North Andover, for his off ox, $10.

Second premium to Joseph Kittredge of North Andover, for his near ox, $8.

Third premium to Philip Marsh of South Danvers, for his near ox, $5.

PAUL D. PATCH,
BENJ. WHEELER,
RICHARD TENNY,
} Committee.

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BULLS.

Report of Committee on Bulls :—

The number of Bulls presented for premium was large, being of Jerseys 6, Ayrshires 2, Short Horns 1, Grade or Natives 7. Their quality was, as a general thing, very fine, and indicated a laudable determination to improve the stock of the county.

The Jersey Bulls were all superior, and it was with difficulty that the Committee made their award. The bulls of Hazen Ayer, R. S. Fay, T. W. Peirce, Joseph Kittredge and R. S. Rogers, would, either of them, be a valuable acquisition to breeders of this class of animals. To the bull of Eben G. Berry of Danvers, the Committee would award a premium of $10.

The Ayrshire Bulls of Eben S. Poor and T. W. Pierce were both of high quality—Mr. Poor's being imported, and Mr. Peirce's being bred from stock imported by the Massachusetts Society for Promoting Agriculture. In some respects the bull of Mr. Peirce was considered superior, and worthy of a premium of $10.

Of Short Horns, there was but one entry—By Ben: Perley Poore; and to his bull "Ellesmere," purchased of Hon. A. B. Conger of New York, the Committee award a premium of $10.

Of the Grade or Native Bulls, a grade Ayrshire entered by Henry Gardner of Salem, a grade Hereford by Jacob Farnham of North Andover, and a native by M. B. Averill of the Salem Poor Farm, deserve particular mention, and were worthy of premiums, had more than two been allowed. But, after careful examination, the Committee would award to Marshall C. Adams of Danvers, for his native bull, the first premium, of $10; and to Israel Trask of Beverly the second premium, $5.

GEO. B. LORING,
OLIVER PORTER,
HIRAM ROGERS,
GEO. W. WARNER,
CHARLES HARRIMAN,
} COMMITTEE.

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MILCH COWS.

Four Cows were entered for premium. We award to
David Merritt, Jr., of Salem, the 1st premium, $10.
John Abbott of South Danvers, 2d premium, $8.
E. S. Poor of South Danvers, 3d premium, $5.

JOSEPH KITTREDGE, }
CHARLES ROGERS, } COMMITTEE.

STATEMENT OF DAVID MERRITT, JR.

I present for premium my cow "Daisy." She is a native, six years old. She dropped her last calf the 17th of June, and will calve again the 9th of May, 1862. From the time of calving to the present time, her feed has been nothing but fair pasturage, with a little first crop English hay at night and morning—except about five weeks of dry weather ending about the 20th of August, she had three small feedings a day of green corn fodder. She has been milked three times daily most of the time, and an accurate daily account has been kept, the milk at all times having been measured. When weighed, it was found to average two pounds per quart, wine measure. It was found that it takes nearly eleven quarts of her milk to make a pound of butter. A copy of the milk account is annexed.

DAVID MERRITT, JR.

1861.	qts.	pts.	hf pts.	1861.	qts.	pts.	hf pts.
June 20	16			June 26	18		
21	16			27	17		
22	16	1		28	17		
23	16			29	17		
24	17			30	17		
25	17						

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1861.		qts.	pts.	hf pts.	1861.		qts.	pts.	hf pts.
July	1	15	1		Aug	13	18	1	
	2	15	1			14	20		1
	3	16				15	20		
	4	15	1			16	18		
	5	17	1			17	17		
	6	16	1			18	17	1	1
	7	17	1			19	18	1	
	8	16		1		20	16	1	
	9	17				21	17	1	1
	10	16	1	1		22	18	1	
	11	22		1		23	18		
	12	19				24	18		
	13	19	1			25	18	1	
	14	18				26	19		
	15	18				27	16		
	16	18		1		28	17	1	1
	17	18	1			29	19	1	1
	18	19		1		30	16		1
	19	18				31	19	1	1
	20	18			Sept	1	18		
	21	17	1	1		2	17	1	1
	22	18		1		3	18		1
	23	18		1		4	18	1	1
	24	18		1		5	15	1	1
	25	17	1	1		6	17		1
	26	16	1	1		7	17		
	27	18		1		8	16	1	1
	28	18	1			9	17		
	29	19		1		10	16	1	1
	30	18				11	16	1	1
	31	19	1	1		12	15		1
Aug	1	20		1		13	16	1	
	2	18	1			14	16	1	1
	3	19		1		15	14	1	1
	4	19				16	17		
	5	20				17	16	1	
	6	17	1			18	16		
	7	21		1		19	15		
	8	17	1			20	15	1	
	9	20	1	1		21	15	1	
	10	21				22	15	1	
	11	19				23	15	1	1
	12	20		1					

Salem, Sept. 23, 1861.

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STATEMENT OF JOHN ABBOTT.

To the Committee on Milch Cows:—

The Cow which I present for premium is mostly of foreign breed.

In March, April and May, the average weight of her milk per day, was forty-two and a half pounds. In June, July and August, her average weight of milk was thirty-five pounds per day.

Two years ago the average weight of her milk was thirty-five pounds per day through the year.

JOHN ABBOTT.

South Danvers, Sept. 22, 1861.

STATEMENT OF EBEN S. POOR.

To the Committee on Milch Cows:—

I offer for premium the Grade Ayrshire Cow "Minna," eight years of age. The quantity of milk given by her for the time designated is as follows:—

Month.	Morning. qts.	Evening. qts.	Total. qts.	pts.
June 1	11	9	20	
2	11	9	20	
3	11	9	20	
4	11	9	20	
5	9	8 1-4	17	1-2
6	10 1-4	9 1-2	19	1 1-2
7	11	8 1-2	19	1
8	10 1-2	9	19	1
9	10	9 1-2	19	1
10	10 1-4	9	19	1-2
Total for first ten days in June,			194	1 1-2

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Month.	Morning. qts.	Evening. qts.	Total. qts.	pts.
Sept 1	8	4 1-2	12	1
2	7	6	13	
3	7 1-2	6	13	1
4	7	6 1-2	13	1
5	6 1-2	6 1-2	13	
6	7	6 1-2	13	1
7	7	5 1-2	12	1
8	7	6	13	
9	7 1-4	6	13	1-2
10	7 1-2	6	13	1
Total for first ten days in September,			134	1-2

This cow calved April 8th, and will calve in April next. Her feed was entirely pasture.

EBEN S. POOR.

South Danvers, Sept. 24, 1861.

HEIFERS.

The Committee on Heifers have attended to their duty and report:—

There were but two three-year old heifers presented for premium which the Committee thought worthy of mention. These were from Eben S. Poor of South Danvers. A statement in full of the quantity of milk given in ten days in June, and also in September, (which statement accompanies this report,) was given to the Committee, and they award the

1st premium, of $7, to Mr. Poor for his heifer "Rosa."

2d premium, of $6, to Mr. Poor, for his heifer "Lila."

There were two other three-year old heifers in the pens, but

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as there was no statement of their milking qualities, the Committee could have nothing to do with them.

There were quite a number of two-year old heifers in the pens, but only five were presented for premium. The Committee award the

1st premium, of $5, to Wm. H. Brown of South Danvers.
2d premium, of $4, to S. A. Merrill of Salem.
3d premium, of $3, to W. S. Messervey of Salem.

There were ten yearlings in the pens, and the Committee award the

1st premium, of $4, to Joseph Longfellow of Newbury.
2d premium, of $3, to Mrs. Richardson of Salem.
3d premium, of $2, to E. G. Berry of Danvers.

There were two lots, of four each, of Calves, and the Committee award the

1st premium, of $5, to Richard S. Fay of Lynn.
2d premium, of $3, to Eben S. Poor of South Danvers.

All of which is respectfully submitted.

JONAS HOLT,
JOSHUA N. KENT, } COMMITTEE.
T. G. DODGE,

STATEMENT OF EBEN S. POOR.

To the Committee on Heifers:—

I offer for premium two Ayrshire (imported) Heifers. These heifers are three years old, and have been fed on grass alone. One (Rosa) calved March 5th, the other (Lily) calved April 10th. They will calve again in April next. The following is the quantity of milk for "Rosa" in June:—

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Month.	Morning. qts.	Evening. qts.	Total. qts.	pts.
June 1	9	7	16	
2	9	7	16	
3	9	7 1-4	16	1-2
4	9	7	16	
5	9	7	16	
6	9	7 3-4	16	1 1-2
7	9	6	15	
8	9	7	16	
9	9	7 3-4	16	1 1-2
10	9	7 1-2	16	1 1-2
Total for first ten days in June,			161	1

Month.	Morning. qts.	Evening. qts.	Total. qts.	pts.
Sept 1	6	4	10	
2	6	4	10	
3	5 1-5	5	9	1
4	6	4	10	
5	6 1-4	4 1-4	10	1
6	6 1-4	4 1-2	10	1 1-2
7	6 1-4	4 1-4	10	1
8	6 1-2	4 1-4	10	1 1-2
9	6 1-2	4 1-2	11	
10	6 1-2	4 1-2	11	
Total for first ten days in September,			104	

The following is the quantity of milk by "Lily":—

Month.	Morning. qts.	Evening. qts.	Total. qts.	pts.
June 1	11	8	19	
2	11	8	19	
3	10	7	17	
4	10	7 1-2	17	1
5	10	7 1-2	17	1
6	11 1-2	8 1-2	20	
7	11 1-2	8 1-2	20	
8	11	7 3-4	18	1 1-2
9	10 3-4	8 1-2	19	1-2
10	10 3-4	8 1-2	19	1-2
Total for first ten days in June,			187	1-2

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Month.	Morning. qts.	Evening. qts.	Total. qts.	pts.
Sept 1	7	5 1-2	12	1
2	7	5 1-2	12	1
3	7 1-2	5 1-2	13	
4	7 1-2	6	13	1
5	7 3-4	5 3-4	13	1
6	7 3-4	5 1-2	13	1-2
7	8	5 3-4	13	1 1-2
8	7 3-4	5 3-4	13	1 1-2
9	8	6	14	
10	8 1-4	6 1-2	14	1 1-2
Total for first ten days in Semptember,			134	42 1

SUMMARY.

	June.	September.
Rosa,	161 qts. 1 pt.	104 qts.
Lily,	187 qts. 1-2 pt.	134 qts. 1 pt.

EBEN S. POOR.

South Danvers, Sept. 24, 1861.

STEERS.

The Committee on Steers have attended to the duty assigned them, and submit the following report :—

There were four entries of three-year old, and one only of two-year old. Your Committee award to

Daniel Adams of Newbury, for his three-year old steers, 1st premium, $6.

Nathaniel Abbott of Andover, gratuity, $2.

Nathaniel Porter of Beverly, for his two-year old steers, 1st premium, $5.

JOSEPH NEWELL,
R. BRAY,
T. G. ORDWAY,
} Committee.

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SWINE.

The Committee on Swine report :—

BOARS.

1st premium, of $5, to Joseph Kittredge of North Andover.
2d premium, of $3, to Byron Goodell of South Danvers.

BREEDING SOWS.

1st premium, of $5, to Jacob Farnham of North Andover.
2d premium, of $3, to Richard S. Rogers of South Danvers.

WEANED PIGS.

1st premium, of $5, to William Foster of North Andover.
2d premium, of $3, to Marshall C. Adams of Danvers.

PAUL TITCOMB, for Committee.

SHEEP.

The Committee on Sheep report that two flocks were entered, viz:—One flock of Cotswold, consisting of twelve ewes, six lambs and one buck, by Charles Corliss of Haverhill; and one, by Richard S. Fay of Lynn, of twenty sheep and five lambs, Oxford Downs. The Committee award to

Charles Corliss of Haverhill, for his buck "Gen. Wool,"	$5
Richard S. Fay of Lynn, for his flock of ewes,	$5
Richard S. Fay of Lynn, for his five lambs,	$5

JOHN WHITTREDGE,
OTIS BAILEY,
D. M. TUKESBURY,
AUGUSTUS FOWLER,
} COMMITTEE.

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POULTRY.

The Committee on Poultry, consisting of Wm. R. Putnam, Thomas H. Cutter and James Flint, submit the following report :—

They found twenty lots upon the poultry stand, yet but few of the competitors complied with the request of the Society in furnishing written statements of the method of keeping, and the amount of eggs produced.

It is difficult for any one who does not keep his fowls confined all the time, to give an account of the expense of feeding.

There was but one lot of turkies exhibited, that by Jonas Holt of Andover. His statement gives us no data by which we can form any estimate of the expense of raising turkies. Our impression is, that unless we take into the account the good done by them in destroying insects, they will not pay for the grain consumed, to say nothing of the young cabbages, beets and other vegetables destroyed by them; yet we think that when we take into the account the benefit received from them by destroying grasshoppers, crickets, and other insects, they may, on some farms, be profitably kept. It is a pleasant sight to witness a flock of turkies moving with military precision through a field, driving or capturing every insect, and thus converting them into food for man. Naturalists tell us to spare the crow, for the good he does in destroying insects. Is it not better economy to keep domestic fowls for this purpose, which will not only destroy the insects, but convert them into wholesome food?

Of the comparative merits of the bronze turkey with the other breeds, we have no practical knowledge. Mr. Holt's statement shows that they have some good traits.

There were but two lots of geese exhibited. Andrew Woodbury, of Hamilton, sent a flock of ten wild geese, as they were called, or the descendants of a pair that were wounded, and caught as they were flying over that place a few years since. They are kept in a pasture, by clipping one wing

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to prevent their flying away. We do not know that any one thinks that they are any better than the old domestic goose.

Byron Goodell, of South Danvers, sent one pair of wild geese.

There were two lots of ducks shown. We have the impression that ducks are such great consumers that they cannot be profitably kept unless a person is favorably located for the purpose. Their rapid growth and early maturity enables some to raise them with profit.

We found a good show of hens. The most numerous were the Brahma Pootra. Of the comparative merits of the different breeds, we speak only as far as our own observation has gone.

The black Spanish are great layers. We have found one objection to them—the young hens will not sit long enough to hatch the eggs, but are sure to sit so as to spoil them, and then desert.

The Brahma Pootra are quiet in their habits; not so much disposed to ramble as some other breeds.

In selecting hens, we prefer the yellow-legged and medium-sized, if we wish to raise chickens for early market.

The profit or loss of keeping hens, depends not so much upon the breed, or the cost of food given, as the care bestowed upon them; and this remark will apply to all the animals upon the farm.

When hens are kept confined, they need a variety of food to make them lay,—grain, vegetables, and animal food of some kind, must be furnished, or they will cease laying,—and they need something to enable them to form the shell; bones, oysters shells, or lime in some form, must be given them. Some think that the soil and the grain contain sufficient quantity of lime for this purpose; but our experience has led us to the conclusion that they need lime in some form. We know that Nature has made provision for this want, by enabling the hen to draw from her system for the supply—and when left to follow her natural instincts, she will not suffer for the want of

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it; she lays her litter of twelve or fifteen eggs, and then sits upon them, and there is no further draft upon the system for lime; but when we keep them laying most of the time for many months in succession, the system becomes exhausted, and they lay eggs without shells, or stop laying, if they are not supplied with lime.

We would not advise any one to keep hens for the profit of it, if they had all their food to buy; but there is much upon every farm that they will consume, that would be lost if they did not eat it, and they destroy many worms and bugs that would be an injury if they did not eat them. We know that they do better when allowed to have the range of the farm; but it is not pleasant to have them spend the night in the vicinity of the best tools and carriages, or to have them scratch, as they delight to, in the best prepared spot in the garden. At some seasons of the year, they may be permitted to go at large upon the farm without doing injury; at other seasons, they should be confined.

The statement of Mr. Ives shows that he can make it pay to keep hens confined.

The Committee recommend a gratuity to

Jonas Holt of Andover, for his bronze turkeys,	$2
Wm. A. Gaffney of Danvers, for geese and fowls,	$2
John S. Ives of Salem, for Brahma Pootra fowls,	$3
Robert Buxton of South Danvers, for lot of fowls,	$2
Andrew Woodbury of Hamilton, for wild geese,	$1
James Buffington of Salem, for ducks and fowls,	$1
John S. Page of Danvers, fowls and pigeons,	$1
Wm. P. Wilkinson of South Danvers, for fowls,	$1
Byron Goodell of South Danvers, for geese,	50 cts.
Wm. C. Beckett of South Danvers, for Dorkings fowls,	50 cts.
Alexander Lewis of South Danvers,	$1
Joseph Chase of Manchester, for fowls,	50 cts.
Robert Robinson and Daniel Buxton of So. Danvers,	50c. each.
Samuel Newman of South Danvers,	50 cts.

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William Cutler of Salem,	50 cts.
Edward B. Hanson of Salem,	50 cts.
John A. Melcher of Danvers,	50 cts.

STATEMENT OF JONAS HOLT.

To the Committee on Poultry :—

GENTLEMEN,—I present for your inspection eight full blood Bronze Turkeys ; two of them are sixteen months old ; the old cock weighs twenty-five pounds and the hen sixteen pounds, and they are not fat.

The chickens weigh, on an average, ten pounds. They are three months old, and have been fed only occasionally since they were hatched. They are a very quiet breed, not moving about so much as the old kind, and they take on flesh much faster than any other kind I ever had ; besides, their meat is much more tender and juicy.

All of which is respectfully submitted.

JONAS HOLT.

Andover, Sept. 24, 1861.

STATEMENT OF JOHN S. IVES.

To the Committee on Poultry :—

I present for exhibition my entire flock of Brahma Pootra Fowls, with the statement of my experience in the management of, keeping, and the result, &c. I wintered nine Pullets from Nov. 1st, 1860, and kept an accurate account of their eggs, which is as follows :—

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November,	12 1-2 doz. eggs, sold at 30c.,		$3 75
December,	11 3-4 " " 28c.,		3 29
January,	10 1-2 " " 30c.,		3 15
February,	15 10-12 " " 30c.,		4 74
			$14 93
Expense of keeping four months—Meal,		$1 67	
	Corn,	1 25	
	Meat,	75	
Four bushels Carrots and Turnips,		1 12	4 79
	Net profit,		$10 14

March 1st, I added 9 hens to my flock, making 18 in all, which I enter for premium. They layed in

March,	28 dozen eggs.		
April,	29 3-4 "		
May,	28 1-4 "		
June,	30 "		
July,	27 10-12 "		
August,	27 1-3 "		
	171 1-6 " from 18 fowls at 20c.,		$34 23
Expense of keeping 18 fowls 6 mos.—Meal,		$4 90	
	Corn,	5 38	
	Barley,	1 88	
	Meat,	90	$13 06
	Net profit,		$21 17

As a part of the 171 doz. eggs were set by myself, and the balance sold for the same purpose at $1 per dozen, I have averaged the market price at 20 cents.

I also present two coops of Brahma Chickens, one coop of Muscovy Ducks, one Egyptian Bantam.

Respectfully yours, JOHN S. IVES.

Salem, Sept. 24, 1861.

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DAIRY.

The Committee on the Dairy report :—

There were fifteen entries of Butter submitted to their inspection, three parcels of which the Committee considered very nice ; some other parcels were very fair.

They award premiums as follows :—

1st premium, of $8, to parcel No. 4, belonging to Sarah L. Ridgway of West Newbury.

2d premium, of $6, to parcel No. 8, belonging to Mrs. F. Stiles of Middleton.

3d premium, of $4, to parcel No. 5, belonging to Mrs. Dean Holt of Andover.

So nearly equal were these specimens, that the Committee carefully compared them before deciding their relative merits.

There were seven entries of Cheese submitted to their inspection, neither of which the Committee thought merited the first premium, of $8. They therefore award premiums as follows :—

2d premium, of $6, to parcel No. 5, belonging to Mrs. C. M. Moulton of West Newbury.

3d premium, of $4, to parcel No. 2, belonging to Mary P. Nelson of West Newbury.

There is more difficulty in deciding upon the merits of Cheese than upon the merits of Butter, for we have noticed that almost every man has his own likes and dislikes in relation to Cheese, and what one man would call very good, another might call very ordinary.

Those ladies who make good Butter and Cheese, deserve not only the small premium awarded to them by this Society, but also the thanks of the whole community. We wish that all of our *young* ladies, while they are learning to play the piano, would also learn to make good butter and cheese. You can please your husbands better with ordinary music and sweet butter, than with the sweetest music and rancid butter.

N. AMBROSE, for the Committee.

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STATEMENT OF SARAH L. RIDGWAY.

I present for your inspection some September butter, made as follows:—

As soon as the milk was brought in, it was strained into nicely scalded tin pans, and allowed to remain thirty-six hours in a well-ventilated cellar, then skimmed into tin pails and stirred morning and evening for three days, when it was churned, and immediately washed in cold water, and salted to the taste, with rock salt, and worked twice before being made into balls, as presented.

Butter will not be nice, unless properly worked and carefully attended to.

West Newbury, Sept. 24, 1861..

STATEMENT OF MRS. FARNHAM STILES.

I present for your inspection one box of September Butter, containg fifteen pounds.

Process of Making.—The milk is strained into well scalded tin pans, to the depth of about two inches, and set in a dry light cellar, remaining from twenty-four to thirty-six hours, according to weather; then skimmed, the cream kept in stone jars, and stirred every day. Before churning, the cream is brought to a temperature of 62 degrees; time taken in churning, about five minutes; the buttermilk is then poured off, and the butter washed with pure soft water; taken out and salted to taste; remaining twenty-four hours before being lumped.

Middleton, Sept. 24, 1861.

STATEMENT OF MRS. DEAN HOLT.

I present for your inspection sixteen pounds of September Butter.

Process of Making.—Milk is strained into well scalded pans, and placed in a cool cellar, to stand from 36 to 48 hours;

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it is then skimmed into stone pots, and stirred morning and evening. I churn twice a week. When the butter is taken from the churn, it is well washed with cold water; one ounce of rock salt to the pound is then added. After standing six or eight hours, it is worked over and left until the next morning, when it is again worked over into lumps, and put up for the market.

Audover, Sept. 24, 1861.

STATEMENT OF MRS. C. M. MOULTON.

I offer for premium four new milk Cheeses, made in the following manner :—

The evening milk is strained into a tub, and rennet added immediately; the rennet should be of sufficient strength to form the curd in thirty minutes, but it should not be broken up under one hour or more. After being carefully broken, it is dipped off and left to drain until morning. The process is repeated with the morning's milk. After that is broken, the evening's curd is sliced into it, the whole is then scalded with water; then thoroughly drain, chop fine, salt, and press twenty-four hours, then put in a dark room, turned and rubbed daily.

West Newbury, Sept. 24, 1861.

STATEMENT OF MARY P. NELSON.

I present for your inspection four new milk Cheeses, two of which are sage. The process of making is as follows :—

Strain the evening milk and add rennet in sufficient strength and quantity to form a curd; in about thirty minutes, break the curd, separate from the whey, and leave it to drain until morning; repeat this process with the morning milk, scald the curd with whey, drain, grind, salt with about eight ounces of salt to twenty pounds of cheese, and press twenty-four hours.

West Newbury, Sept. 24, 1861.

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FARM IMPLEMENTS.

The Committee on Farm Implements, in the absence of the Chairman, make the following report:—

Whitcomb's patent Horse Rake, gratuity, $3.

Davis' patent Radiator, gratuity, $1.

Smith's Portable Laundry, gratuity, $1.

Metropolitan Clothes Wringer, gratuity, $1.

Haven & Whitten's Portable, Hot Air, Ventilating Furnace, gratuity, $1.

Blood's improved Coal Sifter, gratuity, 50 cents.

" " Flour Sifter, gratuity, 50 cents.

Vose's Garden Engine, gratuity, $1.

One Family Carryall, by Chas. Brine, gratuity, $2.

One highly finished Hearse, presented by Charles Brine, gratuity, $3.

Respectfully submitted by

E. G. BERRY, for the Committee.

ARTICLES MANUFACTURED FROM LEATHER.

The Committee award the following premiums:—

To D. H. & C. Stickney of Groveland, for the best pair of thick Boots, the first premium, of $4.

Joseph Morrison of South Danvers, 2d premium, $2.

Hardy & Osborn of South Danvers, for thick sewed Brogans, the 1st premium, $2.

Nathaniel Whipple of Hamilton, for Men's Calf Shoes, the 1st premium, $2.

Also, the 1st premium for Ladies' Walking Shoes, $2.

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S. Driver & Co. of Salem, for Kid Slippers, 1st premium, $1.

Gratuity on Congress Boots, $1.

Gratuity on Ladies' Fancy Slippers, $1.

Alonzo Raddin of South Danvers, gratuity, for Ladies' Walking Shoes, $1.

Gratuity for Ladies' and Children's Shoes, $2.

D. H. & C. Stickney of Groveland, gratuity for Men's Calf Shoes, $1.

Gratuity for Women's Calf Dutch Boots, $1.

Mrs. Mary S. Potter of South Danvers, gratuity for Children's Shoes, $1.

Clark & Co., of South Danvers, gratuity for Binding Skins, $3.

John V. Stevens of South Danvers, gratuity for Kip Leather, $2.

The Committee consider the articles presented to be of the first quality, and well worthy of the premiums awarded.

The Committee would recommend that a premium be offered for Harnesses.

C. H. GOULD, Chairman.

PEARS.

Owing to the unprecedented weather and sudden changes at the close of the past winter, the pear tree suffered so severely that many doubts were expressed as to our being able to make any show of this fruit; and although one of our finest varieties, the Beurre Bosc, was not seen, still another, equally good, were never so fine and large. We refer to the Fondanite d' Autumn or Belle Lucrative. There were upon exhibition upwards of two hundred dishes and plates of pears.

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Regarding the injury to our fruit trees and grape vines, we apprehend that it took place between the last of February and early in March. The ground was so open in that month that some strawberry beds were forked over and plants set. On Sunday morning, March 3d, the thermometer, in South Salem, went up to 75 in the shade and 85 in the sun. On the Thursday following, it was but 10 above nearly the whole day, and upon the 18th, it was only 4 above at sunrise. The Mill Pond was frozen over sufficient for skating.

Such fluctuations of temperature, particularly *thus late*, would, we think, be more disastrous than if they had occurred in December or January. The sudden freezing and thawing of the sap vessels in winter, particularly in the grape vine, causes this trouble; and as the sap is always in motion, at all seasons and under all circumstances, except in the presence of intense cold, as said by that eminent physiologist, Dr. Lyndlay, can we wonder at these results? Biot, a French writer, says that there is a great deal of sap in the Spring, and much less at other seasons. He has also proved, by an ingenious apparatus, that the rate of motion of the sap may be measured at all seasons. In mild weather the sap was constantly rising, but when frost was experienced, it flowed back again.

Among the Pear Trees which seemed to have suffered the most, were the Beurre Bosc and Bartlett. Of the former, whole trees were in some instances killed; grafts, which had borne for two years, were destroyed. With the Bartlett, the injury was in the destruction of the fruit spurs and buds.

The Harvard, Winter Nelis and some others which flowered well in the Spring, set but little or no fruit; while the Belle Lucrative, Buffum, Paradise de Automne and Bezi de la Motte suffered but little. The Belle Lucratives were never finer; there were, in fact, larger specimens upon our tables than at any former exhibition. This variety seems to be growing larger from year to year. They have been, for two years past, at least one-third larger than they were twenty years since.

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Premiums—For 12 *Specimens* $1 *each.*

Belle Lucrative, Thomas Day, Salem.
Flemish Beauty, Jonas Harrington, Salem.
Easter Beurre, W. H. Foster, "
Seckel, Hiram Plummer, South Danvers.
Buffum, F. Baker, "
Black Pear of Worcester, W. D. Northend, Salem.
Vicar of Winkfield, Benjamin Goodrich, South Danvers.
Winter Nelis, S. Fernald, South Danvers.
Lawrence, W. D. Northend, Salem.
Glout Morceau, J. A. Learoyd, Danvers.
Lewis, C. F. Ives, Salem.
Louise Bon d' Jersey, Hiram Plummer, South Danvers.
Beurre Clairgeau, Stephen Blaney, "
Andrews, W. P. Clark, "
Gansells Bergamotte, John V. Stevens, "
Duchesse d' Angouleme, Benj. Goodrich, "
Urbaniste, Hiram Plummer, "
Bezi de la Motte, G. L. Hodgkins, Salem.
Fulton, John V. Stevens, South Danvers.
St. Guislaine, Amos Brown, Danvers.
Beuure Dial, Hiram Plummer, South Danvers.
Beurre Langalier, Stephen Blaney, "
Chelmsford, B. F. Kent.
Beurre D' Anjou, Sumner Southwick, South Danvers.
Tongres, J. V. Stevens, "
Marie Louise, Stephen Thayer, Salem.
Paradise of Autumn, J. A. Goldthwait, Salem.

For the largest and best specimens of the above varieties, "Harris' Illustrated Insects," to J. V. Stevens, So. Danvers.

For the 2d do., to Ephraim Emerton, Salem, $2
For the 3d do., to Stephen Blaney, South Danvers, $1

Gratuities.

William Maloon of Salem, for a collection, $1

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Isaac Hardy of South Danvers, for a collection, $1
Peter Wait, Danvers, " $1

For a single dish of the Beurre Clairgo, to Sumner Southwick; for Belle Lucrative, to the same; Winter Nelis, to William Cheever of Danvers; Vicar of Winkfield, to Hiram Plummer of South Danvers; Passe Colmar to Francis Baker, Long Green of Coxe to Mrs. Lydia Potter, Easter Beurre to A. A. Abbott, Noveau Poiteau to J. V. Stevens, Maria Louise to Benj. Goodrich, Beurre d' Anjou to D. Peirce, all of South Danvers, 50 cents each.

Duchesse d' Angouleme to Jonas Harrington, Salem; Marie Louise to Mrs. Henry Archer, Salem; Belle Lucrative to F. Osborne, Buffum to D. F. Fichols, Flemish Beauty to Mrs. A. W. Smith, Belle Lucrative to A. Osborne, South Danvers; Flemish Beauty to R. A. Merriam, Topsfield; Marie Louise to M. Plummer, Henry IV. to Samuel Newman, South Danvers; Bartlett to Silas Winchester of South Danvers, 50 cents each.

NATIVE WINES.

To H. A. Butters & Co., Haverhill, for Grape and Currant Wine, $2
D. C. Bachelder, Newburyport, Elderberry Wine, $1
Benj. Goodrich, South Danvers, Currant Wine, $1

For the Committee,

JOHN M. IVES.

APPLES.

For the following varieties, your Committee award the premium of one dollar each :—

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Porter, Arthur M. Green, North Andover.
Pickman Pippen, B. P. Ware, Marblehead.
Ribston Pippen, G. L. Hodgkins, South Danvers.
Hubbardston Nonsuch, Geo. Thurlow, West Newbury.
Hunt's Russet, M. C. Adams, Danvers.
Baldwin, D. A. Pettengill, Topsfield.
Danvers Winter Sweet, Silas Winchester, South Danvers.
Seaver Sweet, B. P. Ware, Marblehead.
Minister, George Thurlow, West Newbury.
Sweet Baldwin, H. Ware, Marblehead.
Ramsdell's Red Sweet, Peter Wait, Danvers.
Ladies' Sweeting, Frederick Bray, Ipswich.
Red Russet, E. Lake, Topsfield.
Roxbury Russet, Frederick Bray, Ipswich.
Rhode Island Greening, " "
Fall Harvey, William Tarbox, North Salem.
Lyscom, H. Ware, Marblehead.
Green Sweet, Aaron Lowe, Essex.
Moody, George Thurlow, West Newbury.
Ben Apple, B. P. Ware, Marblehead.
Swaar, Kendall Carter, Danvers.
Aunt Hannah, E. Lake, Topsfield.
Yellow Bellflower, " "

For the largest number and best of the above varieties:

1st to B. P. Ware of Marblehead, Illustrated copy of Harris' "Insects Injurious to Vegetation."
E. Lake, Topsfield, 2d largest, $2
George Thurlow, West Newbury, 3d largest, $1

Gratuities.

H. & J. M. Perry, Danvers,	$1 50
Amos Poore, West Newbury,	$1 50
S. Driver, Danvers,	$1 50
Peter Waitt, "	$1 50
Lewis Allen, South Danvers,	$1 00
Benjamin T. Lane, Danvers,	$1 00

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Charles Nelson, Georgetown, $1
Samuel Blake, South Danvers, $1
Milton Wyatt, Danvers, $1

For the Committee,

F. P. PUTNAM.

GRAPES AND ASSORTED FRUIT.

The Committee on Assorted Fruits, Grapes and Peaches, report that of Assorted Fruits there was but one basket entered, but that was of such decided merit, both in the quality and variety of the specimens, that the Committee award for it the highest premium :—

To Sumner Southwick of South Danvers, an Illustrated copy of Harris' Insects.

Of Grapes, forty-six specimens were exhibited, and, considering the general unfruitfulness of the year, this fruit was found to be unexpectedly excellent. The Committee award

To William P. Martin of Salem, for the best ripened Isabella Grapes, $2
To Hiram Plummer of South Danvers, for the best Diana, $2
To William Wilson of Salem, for the best Hartford Prolific, $2
To Geo. W. Gage of Methuen, for the best Concord, $2
" " " " Native, $2

The following gratuities were awarded :—

Joseph Poor of South Danvers, for Concord Grapes, 50 cts.
David Roberts, Jr., " " 50 cts.
Hiram Plummer, " for Delaware, 50 cts.

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H. D. Twiss of South Danvers, for Isabella, 50 cts.
John M. Ives of Salem, for three varieties, Black Hamburg, Red Chasselas and Fontignac or Muscat, grown in cold shelter, $1
Aaron Low of Essex, for Hartford Prolific, 75 cts.
Joseph Saul of Salem, for Concord, 50 cts.
William T. Dole of South Danvers, for Isabella, Black Hamburg and Black St. Peters, under cold shelter, 50 cts.
M. Ordway of West Newbury, for Blood's White, Blood's Purple, Concord and Seedling, 75 cts.
George W. Gage of Methuen, for Rebecca, 50 cts.

There were also some splendid clusters of Black Hamburg presented by Lewis Allen and R. S. Rogers of South Danvers. The latter also offered for exhibition the Wilmot Hamburg, Cannon Hall and Muscat of Alexandria.

The Isabellas, by Levi Fish of Danvers, B. F. Hutchinson of South Danvers, T. W. Ashby and Stephen Thayer of Salem, deserve honorable mention, as do also many other varieties, which the Committee have now no space to particularly notice.

Of Peaches, the Committee have only to say, that the most fastidious fruit-fancier could find no fault with the quality of the "Freestone White Flesh, Yellow Flesh or Blood Peach for Preserves." Not an unripe or knurly specimen could be found on the Society's tables. Not a peach was offered which was not of the richest quality and most luscious flavor, yet the Committee have awarded no premiums or gratuities for peaches. They could find no positive merits or demerits in this kind of fruit, for what we hope will be deemed a satisfactory reason—that they had none at all before them.

FITCH POOLE,
GEORGE W. GAGE,
CHARLES BOYNTON, } Committee.

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VEGETABLES.

The Committee on Vegetables, having attended to the duties assigned them, submit the following report:—

The number of entries was large, and many specimens were of superior excellence.

The Committee would make especial reference to the entry of S. A. Merrill of Salem, consisting of ninety-two varieties, many of which were very fine. Also, the entry of D. Wentzell, of the Leavitt Farm, attracted the attention of the Committee, not because of the large number of specimens, which was exceeded by others, but because of the excellent quality of the articles exhibited.

Josiah Newhall, of Lynnfield, exhibited some very fine Tomatoes and Onions.

Mr. Aaron Low, of Essex, had some very tempting perfected Tomatoes.

Some mammoth Squashes were shown by William Buxton of South Danvers, which were certainly good for the eye to look upon; whether they were equally so to the taste, the Committee were somewhat in doubt.

Two very nice looking Squashes were exhibited by Andrew S. Porter, grown from one seed, and weighing one hundred and seventy-six pounds.

The Committee noticed some very superior Wheat, raised by Mr. J. P. King of South Danvers, which the Committee are sorry to say was the only lot entered.

A mammoth Cabbage, weighing forty-four pounds, was exhibited by Mr. Seth Friend of Beverly, which ought to satisfy any reasonable Corkonian for one dinner.

Some fourteen-rowed Sweet Corn was shown by Andrew Curtis of South Danvers, which was very large and remarkably well filled.

The Committee, after having carefully examined the various articles, award to

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S. A. Merrill of Salem, the 1st premium, of $8, for the largest and choicest varieties of vegetables.

D. Wentzell of Salem, the 2d premium, of $6

John S. Ives of Salem, the 3d " $4

Gratuities.

R. S. Rogers, South Danvers, collection of vegetables, $2

Josiah Newhall, Lynnfield, " " $2

Aaron Low, Essex, perfected tomatoes, 50 cts.

Nathan Bushby, South Danvers, early tomatoes, 50 cts.

" " onions, 50 cts.

William Buxton, " mammoth squashes, 50 cts.

James Perry, " box of beets, $1

J. P. King, " wheat, $1

Cornelius Sullivan, Beverly, cauliflowers, 50 cts.

H. & J. M. Perry, for varieties of potatoes, $1

A. Lewis of South Danvers, artichokes, 50 cts.

D. W. Putnam, " King Phillip corn, $1

John V. Stevens, " two squashes, 50 cts.

Philip L. Osgood, South Danvers, citron melons, 50 cts.

Robert G. Buxton, " Jackson white potatoes, 50 cts.

Seth Friend, Beverly, mammoth cabbage, 50 cts.

Daniel Osborne, South Danvers, Cambridge squashes, 50 cts.

James H. Conner, Lynn, Fejee tomatoes, 50 cts.

Andrew Curtis, So. Danvers, fourteen rowed sweet corn, 50 cts.

Andrew S. Porter, " two squashes, 50 cts.

Nathaniel Porter, Beverly, pumpkins, 50 cts.

Andrew Curtis, South Danvers, crook-neck squashes, 50 cts.

D. S. Pettengill, Topsfield, Kohl Rabbi turnips, 50 cts.

E. G. Hyde, Danvers, Davis' Seedling potatoes, 50 cts.

W. D. Northend, North Salem, sugar beets, 50 cts.

D. W. Putnam, South Danvers, patatoes and onions, $1

W. E. Nutter, " small red tomatoes, 50 cts.

Moses Town, North Andover, one hill of potatoes, 50 cts.

Charles Nelson, Georgetown, apple pie melon, 50 cts.

MOSES TENNEY, Chairman.

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BREAD AND HONEY.

The Committee on Bread and Honey have attended to the duty assigned them, and report that there were eleven entries of Honey, and fourteen of Bread. They award the following gratuities :—

BREAD.

Annie M. Waldron, Danversport,	50 cts.
M. W. Batchelder, Salem,	$1
Mrs. Joseph Moore, South Danvers,	50 cts.
Mrs. H. M. Colcord, "	50 cts.
Ella J. Tapley, "	50 cts.
Mrs. E. G. Hyde, Danvers,	$1
Charlotte Potter, Middleton,	50 cts.

HONEY.

Levi Fish, Danvers,	$2 50
Joseph Chase, Manchester,	$2
J. H. Southwick, Danvers,	50 cts.
Robert Buxton, South Danvers,	50 cts.

CALVIN ROGERS,
JOHN J. GOULD,
ALONZO P. PHILLIPS, } Committee.

COUNTERPANES, CARPETINGS AND RUGS.

The Committee on Counterpanes and Rugs would submit the following report :—

The Committee found on exhibition one piece of Cassimere and one of Flannel, which they considered worthy of notice. No goods of this kind having been exhibited for three or four

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years, no premium was offered; but they would recommend an award of two dollars to George W. Warner of Ipswich, for one piece of Cassimere and one of Flannel, No. 74.

There was a very good number of Counterpanes on exhibition, some of which were very fine; one exhibited by Hannah Cleaves of Beverly, and one by Miss Caroline Baldwin of Salem, were especially deserving.

In Rugs, there was a very large number, of excellent quality, exhibiting much taste and skill, many of which, although the cost of material was but a few cents, were really beautiful. The exhibition in this very important department has never been equalled, in the judgment of the Committee.

The following awards were made:—

COUNTERPANES.

Hannah E. Cleaves, Beverly,	2d premium,	$2
Nancy Woodbury,	" gratuity,	$1
Margaret Putnam, Salem,	"	$1
Denmark Proctor, Gloucester,	"	$1
Lydia S. Cutting, So. Danvers,	"	75 cts.
Lizzie O. Bancroft,	" "	75 cts.
M. A. Ricker,	" "	50 cts.
N. M. Marrow, Lynnfield,	"	50 cts.
Sarah F. Tuck, Beverly,	"	50 cts.
Martha Ferguson, So. Danvers,	"	50 cts.
Hannah Tarleton, West Newbury,	gratuity,	50 cts.
Mrs. J. H. Cummings, Manchester,	"	50 cts.
S. J. Peabody, Danvers,	"	50 cts.
G. H. Frye, Salem,	"	50 cts.

RUGS.

Sally P. Wheeler, South Danvers,	1st premium,	$3 00
Mrs. Thomas Farris, Beverly,	2d premium,	$2 00
Sophia W. Walcott, South Danvers,	gratuity,	$1 00
Miss M. Patch, Hamilton,	"	$1 00
Lydia Bushby, South Danvers,	"	$1 00
Sally Parsons, Salem,	"	$1 50

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Abigail Lord, South Danvers,	gratuity,	75 cts.
Mrs. Amos Osborne, 2d, South Danvers,	gratuity,	75 cts.
Aseneth Buxton,	" "	50 cts.
Mrs. C. A. Lowe, Beverly,	"	50 cts.
Ann S. Dearborn, East Salisbury,	"	50 cts.
Nancy Fish, Danvers,	"	50 cts.
M. S. Tuck, Beverly,	"	50 cts.
Hannah L. Trask, South Danvers,	"	50 cts.
Lucy Brown, Danvers,	"	50 cts.
Henry Nutter, Essex,	"	50 cts.
Mary Nutter, South Danvers,	"	50 cts.
Julia E. Moulton, Beverly,	"	50 cts.
Hannah P. Potter, South Danvers,	"	50 cts.
M. A. Hill,	" "	50 cts.
Mary D. Cook, Wenham,	"	50 cts.
Lydia Woodbury, Manchester,	"	50 cts.
Mrs. William Pickering, South Danvers,	"	50 cts.

Respectfully submitted,

B. C. PUTNAM,
AMOS MERRILL,
THOS. P. GENTLEE,
G. A. TAPLEY,
GEORGE P. DANIELS,
} COMMITTEE.

FANCY ARTICLES, &c.

The Committee report as follows :—

Miss A. L. Tuck, Beverly, table mats, 2d premium, $2 00

Gratuities.

Anne F. Gould, Boxford, fancy cone work, $1

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Mrs. J. F. Estes, South Danvers, what-not,	50 cts.
Eunice M. Bancroft, Lynnfield, frame and picture,	50 cts.
J. E. Casperson, Salem, watch case,	50 cts.
Peter Wait, Danvers, frame and case,	50 cts.
Mrs. M. A. Howland, So. Danvers, frame and picture,	50 cts.
R. Hutchinson, Danvers, ottoman,	50 cts.
Mrs. T. W. Carr, South Danvers, picture needle work,	$1 50
Susie J. Baker, " sofa pillow,	$1 50
Sarah E. Fossit, " fancy mat,	50 cts.
S. L. Upton, " chair seat,	50 cts.
Emeline A. Sampson, Salem, lamp mat,	50 cts.
E. H. Whitney, South Danvers, 1 hassock,	50 cts.
M. Pray Taylor, " baskets,	50 cts.
C. A. McClellan, " sofa pillow,	50 cts.
Mrs. C. J. Folsom, " ottoman,	50 cts.
Louis C. Tuck, Beverly, mittens,	50 cts.
Charlotte Dodge, " shawls,	50 cts.
A. C. Norris, Salem, tidy,	50 cts.
J. A. Upton, South Danvers, crochet,	50 cts.
Charles Hobart, " picture,	50 cts.
Julia E. Brown, Lowell, skirts, &c.,	50 cts.
Miss M. H. Hanson, South Danvers, skirts,	50 cts.
Mrs. Joseph H. Cummings, Manchester, dress,	50 cts.
Mrs. H. P. Towne, Danvers, cotton hose,	50 cts.
Sarah Baker, Andover, hose,	50 cts.
Caroline Gomes, Salem, child's blanket,	50 cts.
Mrs. A. P. Pettingill, Topsfield, embroidery,	50 cts.
F. J. Nichols, Danvers, mosaic work,	$1
Sarah Baker, Andover, cushions and tidy,	50 cts.
E. A. Downie, Salem, head-dresses and mats,	50 cts.
Hannah Wait, Ipswich, lace,	50 cts.
E. F. Wilson, South Danvers, picture,	50 cts.
Miss Sarah Reed, " crewel-work,	50 cts.
Mrs. L. A. Furber, " hair-work,	$1
A. H. Perry, Salem, skates and model of fire engine,	$1
A. L. McKenzie, South Danvers, table covering,	$1

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Miss Mary S. Wilson, Beverly,	50 cts.
Miss Helen E. Hardy, "	50 cts.
Louisa Tyler, Salem, tidy,	50 cts.
Louisa A. Parsons, South Danvers, fancy articles,	50 cts.
Mary E. Breed, Lynn, shell frame,	50 cts.
James F. Reed, South Danvers, flower pots,	50 cts.
G. E. Emery, Lynn, fancy soaps,	$1
Betsey Clough, South Danvers, yarn,	50 cts.
Esther M. Pope, " tidy,	50 cts.
L. J. Spiller, " stockings,	50 cts.
Portia Brewer, Salem, yoke and sleeves,	50 cts.
Mrs. Henry Cummings, Haverhill,	50 cts.
Helen B. Cummings, " seven articles,	$3
Mrs. E. Southwick, South Danvers, lace pillow,	50 cts.
Mrs. E. W. Jacobs, " frame, &c.,	50 cts.
E. D. Folsom, " chair seat,	50 cts.
E. M. Phillips, " worsted-work,	50 cts.
Susie J. Baker, " ottoman,	$1
Amelia A. Tibbetts, " "	50 cts.
Daniel F. Cates, " frame and picture,	50 cts.
E. M. Price, " frame and sofa pillow,	$1
Mrs. C. J. Folsom, " ottoman,	50 cts.
Mrs A. Fairfield, " sofa pillow,	50 cts.
Miss S. E. Perry, " worsted work,	50 cts.
Miss S. B. Hanson, " mat and cushion,	50 cts.
H. J. Tarlton, West Newbury, fancy work,	50 cts.
Mrs. Jane Preston, South Danvers, 1 seat,	50 cts.
E. M. Sawyer, " table cover,	50 cts.
J. A. Upton, 1 seat work,	50 cts.
Mary P. Chaplin, Danvers, worsted and frame,	$1
S. L. Upton, South Danvers, two tidies,	50 cts.
C. Mack, " picture,	50 cts.
Miss Page, Danvers, two pictures,	$1
Lucy A. Nutter, South Danvers, chair cover,	50 cts.
M. H. Hanson, " picture,	50 cts.
Caroline Gomes, Salem, chair cover,	50 cts.

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Mary A. Stark, South Danvers, what-not,	50 cts.
Mrs. Abi Osborne, vase of wax flowers,	$1
Mary P. Chaplin, Danvers, worsted-work in frame,	$1
Maria Estes, South Danvers, what-not,	50 cts.

FRANCIS BAKER,

For the Committee.

FLOWERS.

In examining and passing upon the articles shown in this department, your Committee have met with no small share of perplexity. We are well aware that the partisans of strict utility might think it a matter of too little importance for a committee to consume two or three hours over, but in fact, the proper awarding of the sum of twenty-five dollars among one hundred and tweny-five competitors, and this on the score of simple merit alone, is not unattended with embarrassments, whether it be in an exhibition of dahlias or some matter of much greater significance. These difficulties are two-fold; for in part they arise by the excessive number of entries, and in part by the very limited amount at the disposal of the judges; making it necessary to exclude all but the very best articles from consideration, and again, to give to these such gratuities as are often unsatisfactory, and in fact, seem entirely trivial.

This illustrates the position of your Committee in the present instance. The evil of needlessly dividing lots of articles for the sake of entering them under different names, and thus obtaining more tickets of admission, was fully exemplified on

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this occasion. Not only so, but never before do we remember to have seen so many articles exhibited which no prudent judge would recognize as meritorious. We attribute this also to the cause above assigned, for we cannot but think that many of those whose flowers we found on the tables, knew perfectly well that their chance of a prize was, and ought to be, extremely slender. Still, the very fair and democratic practice of the Society in giving tickets, is as available in the case of a meagre, ill-formed boquet, as in that of the best collection; and of course, to use a common phrase, the exhibitor of the former makes it *pay* far better than the other.

It was due, probably, to such causes as these, that your Committee, on commencing their work, found their tables loaded with floral contributions to a degree alike undesired and unexpected. The proper space allotted to the department was speedily filled, vases and boquet-holders were not to be had, and while many flowers of pretentious look were unavoidably left to "waste their sweetness on the desert air," (desert, at least, by the good old definition "where no water is,") a multitude of others, by a shade better of fortune, were deployed upon duty on the fruit tables, there to add what they might of lustre to a department that, unlike ours, was nowise troubled with repletion.

Having by this expedient evoked something like order from confusion, we addressed ourselves to our duty, and with how much of success will better appear in the sequel. At this point, we take leave to say one or two things that occur to us, perhaps at the risk of being chargeable as malcontents, or perhaps liable only to the tenderer reputation of innovators.

In the first place, we cannot see what good can result to the Society, or through the Society, to the public, by permitting the entry, at these exhibitions, of flowers and boquets that any one can see possess no merit whatever. Not that we advocate the establishment of caste or favoritism in such matters; but it has already come to the point, where the Committees are compelled to declare a large proportion of what they examine

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wholly unworthy of premium, and this they are likely to have to do from year to year. Now why not, by a simple expedient, at once relieve the Committee of this duty, and the tables of an abundant, but extremely unproductive, display? Why not empower the proper officer, with whom the entries are made, to exercise a just discrimination, and decline receiving such articles as can, evidently, stand no chance of favorable regard in the critical examination? Many reasons might be assigned, we believe, why such an officer might better discharge this duty than the Committee; while no person fit to receive the entries in any way, could be deemed incompetent for this, at least so far as the rejecting of many specimens brought under our eye at the last exhibition. If it be urged that no one should be debarred from making an entry of his or her contribution, then we say no one should be debarred from a proportional gratuity, and the amount in the Committee's gift should have been five times greater than it was. If it be said that the Society designs to encourage those who are learning to grow flowers or make boquets, and all such should be allowed to show their efforts and results, we wish to know if the Society can afford to give their tickets to all who are glad to show a poor contribution, and say they are learning to produce a better one. Or is it not, rather, the true policy of the Institution to reward those who *have learned*, and who prove the fact by works worthy of exhibition? We cannot see that it is any greater discouragement to reject an article when first presented, than to receive it and give it up to inevitable neglect and obscurity afterward.

Not intending to task your forbearance, we wish to allude to another matter in this connection, to wit,—the plan of awards in this department of the exhibition. We know that our predecessors on this Committee have drawn some attention to the point, but we do not find any consequent alteration in practice. Now we beg to say that, with very much deference to the wisdom of the Society, we think the mode of gratuities the very worst possible for all concerned. It is bad for the Society, for

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the entries will be numerous, and having but a small appropriation for this department, they unavoidably earn the reputation of caring little to encourage the showing of flowers, which we think unjust. It is bad for the exhibitor, for it narrows down his chances to the getting of nothing at all on one hand, or on the other, a sum next to nothing, which shows mere recognition of merit without at all rewarding it. Lastly, it is bad for the Committee, for it loads them with the united responsibilities of criticism and award, exposing them to the censure of disappointed exhibitors, with no defence for what may have been a conscientious disregard, save what such exhibitors would call caprice, or arrogance, or incapacity. Now these are real evils; and as we desire the good of the institution and its shows of flowers, so we would see them corrected. We believe it has been objected to the idea of fixed prizes, or premiums, that this is not a Horticultural, but an Agricultural Society, and the giving of such premiums for flowers would be foreign to its genius and purposes. No doubt this is well enough in theory, but how much nearer the genius of the institution is a system of gratuities? If it be foreign to its purpose to encourage the growing and management of flowers, then it is surely an error to award anything for their exhibition, if it be not so to allow that exhibition at all;—if it be not thus foreign, then the award should not only be made, but made in the way to accomplish the best results. If it be really true that the distinction is so broad between Horticulture and Agriculture that the Society cannot feel free to take the best method in spending a little money upon its floral shows, then we respectfully submit that it would be better to omit that part of the affair altogether.

But we do not design to press these considerations any further than to say that in this thing, as in the matter of accepting or rejecting articles, the Committee were compelled to take into their own hands, and do, what ought, it seemed to them, to have been done already to their hands. To have entered into a just comparison of the qualities of all the articles

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entered, would have cost a day's severe labor; to bring the articles so under view as to admit of it, would have been impossible, so extremely scanty were the accommodations. Rejecting, then, from our care all contributions not really meritorious, we proceeded to form a system of premiums ourselves, in which form, with the after addition of a few gratuities, we proceeded to dispense the bounty of the Society as we judged most fit. If any competitor has felt aggrieved by this course of action, we see no help for it, for were we in the same position again, we could adopt no other in justice to all concerned, unless such an amount were at our disposal as would bear dividing into at least one hundred and twenty-five respectable parcels.

Perhaps we are earning the name of fault-finders; but if so, we are finding fault in a good cause and with honest hearts. We were sorry to see so little diversity in the display. There were but two stands of Dahlias that stood simply as such, and we remember but two stands of miscellaneous cut flowers that could be distinguished from other articles. A single stand of Asters appeared where there should, we thought, have been more; and the Gladiolus, that Queen of Autumn, was only met in one or two places. By dint of searching, a few Phloxes were discovered. Where were the representatives of this fine, this truly American flower, that should have attested the culture it really has with us?

But while these were unpleasantly absent, there were many others that poorly replaced them. Fashion seemed to have gained sway here, as in other things; or else some epidemic impulse had turned the heads of the florists all one way. Boquets, dishes, baskets, vases, one succeeded another in a routine almost unvaried, or broken only by a redeeming pot plant here and there, and then we went on among boquets, dishes and baskets, as before. We could not help stopping with the frequent query, "Why is there so little variety in a show that is so good, as a whole?" And the thought would arise as often, that less of this difficulty would be found under

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a system of premiums, (but that we promised to say no more about.) Certainly, however, it is evident that the exhibition would have been vastly better if fewer artists had tried their hand at boquet-making, and had been satisfied to display their favors in simple collections of cut flowers, trusting for success rather to taste in selecting perfect blooms than to skill in arranging them for decorative uses. It requires no small experience, as well as natural talent, to compose a boquet or floral design of any sort, that shall betray superior merit; and a poor work of this sort looks worse in an exhibition than the most ordinary set of cut flowers ever brought out. It does not lessen our confidence in this idea, that we found it so fully proven on this occasion in both its aspects. It is hardly necessary to say, in explanation, that we consider the selections of cut flowers shown to have been the head of the display by quite as much as placed the boquets and vases at the other extremity.

Yet after this long story of defects, we gladly pronounce the show of flowers to have been, on the whole, a very fine one. The Dahlias were superior; the Asters and Miscellaneous Flowers fair; the Pot Plants very good, and many of the Baskets and Dishes did credit to the exhibitors. Thanks to the propitious Autumn, our fears for the success of the Dahlia were dissipated, and this gorgeous old favorite was in its high place of honor as usual. Not only so; but more perfect blooms have rarely come under our notice. Out of nearly six hundred flowers, we could hardly detect three score that showed decided imperfection. Would that the same could be said of the other members of the very brief series, that form the sole stock of a floral show in harvest-time. But the Asters, whose claims and capabilities are second only to the Dahlias, had nothing to recommend them in this case but color, which they showed in great perfection. Their form, in every instance noticed, was scraggy and unsymmetrical, proving a lack of skill in cultivation, or of taste in selection, and both alike fatal to success in exhibition. If half of those who

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brought forward asters taken up from the border and potted—whole plants, flowers and all—had cut off these flowers and shown them, with a few more, in bottles on a small stand, they might have gained a very favorable judgment; as it was, they had their labor (ticket included) for their pains.

Take another example. The Ten Week Stock or Double Gilliflower, is a plant every way deserving of the attention of cultivators. It can be raised from seed at any time of year by proper management, and all through the summer and autumn with very little management at all. In color it rivals the Verbena, claiming, like that, every shade of red, purple and white, and only failing to afford the pure blues on one hand, and the decided yellows on the other. Beauty of form it eminently possesses; if not in the separate flower, at least in the cluster, and peculiarly so in the entire plant; while its hardiness is such, that we have known most resplendent boquets gathered from it on Thanksgiving Day.

Now had the pains that was laid out on inferior boquets, been taken to cut and exhibit this fine and worthy flower, we should have had a show finer by a large per centage; and perhaps have been obliged to complain of the scanty appropriation of our funds more loudly than we have now any conscience for. But so far from this, a single dish contained all the Gilliflowers on exhibition, so far as we discovered, and those, though very fine, were too scanty to properly represent a flower so fit for autumnal honors.

Let us revert to the Dahlia for illustration of another point. Personal rivalry, local feeling, or some other cause, (we neither know nor care what,) has created a pleasant competition in the production of this flower between the upper and lower parts of the County. Salem and Beverly on one side vie with Lawrence on the other; and the result is the display of blooms by both with hardly a flaw of character. Now however much a generous emulation may be praised, or a sectional jealousy deprecated, we yet rejoice in a good result from either; and something of the sort has given the Dahlia a perfection not yet

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found in other flowers with us. But if we seek to encourage flower-growing, we must set up the like standard in the case of other plants, and welcome all laudable competition that tends to bring us up to it. There is no reason why our people should not be as anxious to show fine, perfect Asters, Phloxes, and Gilliflowers, as Dahlias; and we suspect a very little stimulus, if in the right direction, would suffice to wake them to this kind of enterprise.

Perhaps our worthy Essex farmers are not yet wholly rid of the idea that raising flowers is "women's work." So it is; but not the less that of men, by any means. Woman shines in every work of benevolence, but man honors himself in the giving of alms as much as she. Woman is lovely in connection with the education of the young; is not man equally well employed in the same field? Is not man as appropriately placed beside the sick-bed as his companion?—though not, in this and all other cases, exerting the same gifts, yet those of equal usefulness and honor, according to the natural endowment of either. No, let not the farmer, nor the strong man of any occupation, indulge the false pride of pretending to be above the admiration of flowers. "But," he says, "flowers look charmingly, but have no usefulness; they do no good that I know of." Suppose it is so; how much good does the carmine do, that you love to see mantling your Red Astracans as well as any one? Is the Baldwin better for its ruby coat, or the Maiden-Blush for the glow that has borrowed it a name from the loveliest of all things? Is the Bartlett more luscious for its gold, or the Tomato more wholesome for its fine crimson? But the plainest farmer loves all these better for their beautiful hues, and he knows it, and cannot help it, and still those hues have no more of utility about them than the tint or quilling of an Aster. There is just as fine a vein of enjoyment in the farmer's nature as in any man's; nay, he, of all men, is the one to have enjoyment—a full, deep, overflowing cup of it, for his physical system is aptest to be tuned to the true natural harmony, vigorous and strong, and beauty ought to rise on his

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vision, not in pale, diluted colors, but glorious and warm as a haymaker's sunshine.

The flower beds ought to be as inseparable from the farm as the barn or the muck-heap. The kinds we have named ought always to be there, as well as many others. The greenhouse may or may not be added; but the flowers that do not need its shelter should never be excluded from the farmer's home. And a moment's thought will show us that this leaves a list by no means poor; the Crocus, Tulip, and all the Lilies nearly, with the Crown Imperial and the Hyacinth, the Primrose and Polyanthus, the Roses and Pinks of countless kinds, the Dahlias and Asters and Chrysanthemums and Gladioluses, and then Phloxes and Gilliflowers of all sorts, not to mention many more. We only speak of such as need no care in winter, beyond the saving of seed, or the storing of bulbs just out of the way of frost. Likewise they are all, in some sense, florists flowers, such as a wholesome pride and emulation may be felt in raising for exhibition.

Nor is the production of such beautiful blooms a process of artificializing and monster-making, as some have labored to believe. The more thoroughly single a Tulip is, and the more perfectly every organ is formed, the better is the flower, by the judgment of the best florists. The same is true of the Sweet William and Pansy and Primrose. Phloxes, Gladioluses and Lilies are never double; Hyacinths are little better for being so, while Asters produce nearly as good seed when they *are* double, and cannot, therefore, be much worse. But there is no need to argue this. Nobody can say much about artificializing flowers who raises Giant Rhubarb, Mammoth Squashes, or Pears on quince roots whose life no company would insure at any premium. The growing of lovely and perfectly formed flowers is as much in harmony with nature as any of the operations of culture. Man is a worker of changes in everything; he has, so to express it, *made* the Apple, Peach and Pear; he has *made* the Potato and the dozen of roots that we think so much of; and shall we call him any more a fool because he

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has doubled the Rose and the Chrysanthemum to make them feed more vigorously the hungry life within. Surely not; let the Farmer cultivate flowers; let him raise the very best he can, and show them for his own credit, and to excite a generous competition in the hearts of his brethren. They will be like a red cheek on the sunny side of his own mellow harvest; like the bloom on the features of his own home-fed daughters, which enhances and testifies their worth, though it may not cause it. In their mute eloquence, they shall speak to him of a life higher than the mere flitting present; for his full barn and bin only suggest the stern fact of ever-returning hunger, but these can minister to a want that bread cannot satisfy, hinting still at the painless experience of an immortal rest, from which they seem like lovely premonitors, always murmuring in the ear of him who notes them,

"Oh pray believe that angels, from those blue dominions
Brought us in their white laps down, twixt their purple pinions."

A succinct statement of the gratuities awarded by your Committee will close this report:—

I. CUT FLOWERS.

No. 112. 237 Dahlias—80 varieties. J. C. Hoadley, Lawrence.

This was, apparently, the same collection that has led our exhibition so many years, hitherto, we believe, hailing from the premises of C. S. Storrow, Esq. The change in name we know nothing about; the flowers were remarkably perfect in form, and in color, possessed great delicacy, but not so much of strength or variety. Rather the best entry, on the whole. $4

No. 68. 280 Dahlias. Bosson & Glover, Salem.

A very fine stand, and remarkably well shown. We found a good many centered and imperfect blooms, but the range of

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color was excellent, the tints very pure, and the variety very copious. Considering the large number of flowers and the superiority of color, it had the second place. 4 00

Nos. 123 and 124. 34 Dahlias, with Gladioluses, etc. Geo. Masury, Beverly.

There were no better Dahlias shown than these. Out of the thirty-four, there were only two poor ones, while many were most superb blooms indeed. A hundred such might have had the first prize, and we were sorry the collection was so small. The other flowers were excellent; in fact the best Gladioluses shown. 2 00

No. 113. Dahlias, Balsams and Phloxes. M. Flynn, Lawrence.

The best stand of miscellaneous flowers, but not remarkably fine. The only feature of merit was the Phloxes, which were very fair. No others were shown, we think, however. We give to encourage this deserving flower, 50

II. BOQUETS AND DESIGNS.

No. 48. Pair Table Boquets. Mary S. Ropes, Salem.

There will always be two parties among boquet-makers; those who prefer the loose flowing style of construction, and those who affect the compact, firmly tied system. The first looks most natural; the last is most durable and convenient for use. Both have advantages and defects, and both should meet full toleration. This pair were a fine example of the free style, made with a full variety of flowers, and finished with streamers of Mauraudias and Canary-bird-flower very elegantly. A meritorious piece of work. 2 00

No. 69. Pair Table Boquets. Alice W. Glover, Salem.

These were as strongly in the strict, as the others in the free, style. Had not the feeling of the Committee been rather unfavorable to the compact system, a larger award might perhaps have been made to these, which were very worthy efforts. There can be no comparison between this and the last entry

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above, but in reference to others of the same class these boquets were the best in the hall by far. 50

No. 76. Vase of Native Flowers. Dr. George Osgood, Danvers.

The study and love of Native plants and flowers should underlie and accompany all taste for those of the garden. And when they are shown by one who deserves as well of his country in this respect as this veteran botanist, they certainly demand consideration. Moreover these were very good of their kind, and the greatest variety exhibited. 50

No. 119. Vase of Native Flowers. A. J. Ordway, West Newbury.

A good variety displayed with much taste. The vase was in rustic moss-work, and betrayed a good deal of labor and patience. 50

No. 88. Basket—Native Flowers and Fruits. Harriet M. Colcord, South Danvers.

A perfect little gem; including almost all the field flowers of the season, arranged without that senseless profusion that too often mars such work, and yet with little omitted that would add to the effect. We commend this lady's taste very cheerfully. 50

No. 50. Flower Basket. Hattie A. Winchester, South Danvers.

If somewhat greater variety of color had appeared in this, it would have been much better. There was nothing special about it, but it was one of the best among the scores of its class, and was really of much merit. 50

No. 70. Basket of Cut Asters. Ellen Bosson, Salem.

Very beautiful. True, the central "shape" on which the asters wers disposed, had a rather blockish look, and we could not help the suspicion that there was a loaf of cake hidden under the flowers; but this is not a great fault. The piece was every way worthy of 1 00

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No. 22. Two Flower Baskets. F. Lamson, Salem.

The crown and glory of the Basket makers, in this instance, certainly. One covered with Amaranths and the other fully supplied with Japan Lilies; they were beautiful objects, and attracted more notice, we believe, than any other flower pieces in the exhibition. Without discussing them in detail, we will say that with more money to give, we should have given them more than 1 50

No. 121. Dish of Cut Flowers. R. S. Rogers, Salem.

Of flowers arranged in plates or dishes, this was altogether the finest specimen, being of large size and got up with excellent taste. It illustrated, however, the value of a single flower; for almost the whole was made up of the endless varieties of the Gilliflower. Besides these, a few choice Gladioluses finished off the piece, with (we think) a very few other sorts, and the effect was charming. We think a little broader contrast might have been secured among the principal flowers with advantage, which is all the improvement we suggest. 1 00

No. 43. Pyramid Dish of Flowers. M. A. Hill, South Danvers.

This dish escaped our notice for some time, by reason of its small size, which, in fact, was about all the defect we saw in it. The truth is, the best piece is very liable to be overlooked in such a mass of its own kind, when it has not great size or pretension to thrust it forward. Modesty does not always pass for its real value, either in dishes of flowers or those who make them. This piece was very worthy. 50

No. 108. Vase and Dish. C. Baldwin, Salem.

Notable for its neatness, but not a thing of much show. The wonder is that we were led to notice it. It was simple, yet rather unique and highly pleasing. 50

No. 89. Vase and Dish. Susan L. Driver, Danvers.

Very fair and creditable, but with no special peculiarity.

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At any rate, it was well worth what we gave it; for who would make the like on any other occasion for 50

No. 114. Dish of Flowers. Susan S. Gilson, South Danvers.

Good, and one of the best shown, but not remarkable. We wish all had been as worthy 50

No. 115. Floral Designs in frames. Mrs. H. Cummings, Haverhill.

These were made up of specimens well dried and pressed, and then carefully arranged in frames under glass. The beauty of the work was incontestable, the perfection of the colors complete, and the effect highly agreeable; but we suggest that the style of arrangement might be greatly improved, both as regards the distant effect and the display of the individual flowers. The form in each case was a compact oval, giving the idea of a solid head or mass of flowers. A design of a more open and branching character would possess more of vivacity, and light and shade, and be free from the unpleasant crowded appearance we notice in this. To so good work we should have given more, but shortness of funds prevented. We however mention it with honor. 1 00

No. 143. Floral Design in frame. Lizzy H. Hutchinson, Haverhill.

This number was only found on the article, and not on any of the entry-books. The same remarks apply to it as to the last, as it was precisely of the same character. We learn that the artist is a pupil of Mrs. Cummings, which renders the work worthy of peculiar notice. 50

III. POT PLANTS.

No. —. Maranta Zebrina. R. S. Rogers, Salem.

This is one of the plants now so much in vogue in greenhouse culture, raised almost exclusively for their beautiful foliage. This was a very fine specimen, with leaves estimated

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at four feet in length, and beautifully striped on the upper surface with dark bands. 1 00

No. 37. Brugmansia Arborea. Geo. E. Houghton, South Danvers.

This is an aristocratic cousin of the unlovely Stramonium, free from the detested odor of the latter, and with flowers of delicious fragrance. It was a good, though not a superior specimen, with about a dozen flowers. 50

No. 42. Gesnera Splendidissima. B. D. Hill, Jr., South Danvers.

Another of the foliage plants, better for common culture than the Marantas, as requiring little heat to grow it. The variegation is very fine. This was a small, but very well grown and thrifty plant. 50

No. 96. Sedum Sieboldii. Peter Waite, Danvers.

This is the best of all the Sedums for the garden, perfectly hardy and flowering regularly. It has the most elegant habit, moreover, of all. This was very large, being two feet or more in diameter. 50

No. 104. Vallota Purpurea. Mary Floyd, South Danvers.

This fine flowering bulb is usually known as an Amaryllis, but is really quite distinct from that genus, though somewhat similar. A better one of the same sort was shown, but did not appear to be entered for our consideration. This was, however, very well grown, and we readily award it 50

The above are all that were judged to be worthy of gratuities. There were some others of considerable merit, of which the Committee desire to make honorable mention. Such, for instance, were No. 1, a pretty Jerusalem Cherry by Jas. Ayer, South Danvers—No. 2, two dishes of flowers by Mrs. H. P. Towne, Middleton, which were very fair.

No. 26. 55 blooms Cut Asters, John V. Stevens, South Danvers, which were almost good enough for a prize.

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No. 38, Dish of Flowers by Emily Woodbury, and

No. 39, Another dish by Louisa Stevens, both of South Danvers, and both very fair.

No. 41, Cut Flowers, by B. D. Hill, Jr., South Danvers, was varied and very pleasing, containing all the Snapdragons in the hall, or nearly so.

Nos. 54 by Susan E. Morrison—56 by Lydia Osborn—59 by H. G. Buxton—and 65 by M. J. Buxton—all of South Danvers, were four good dishes of flowers, but without the special excellence to gain a more substantial award.

No. 74, a Cotton Plant by W. Bushby, South Danvers, was notable as a live representative of the now famous usurper King Cotton, but was too small to show his real character.

No. 100, by N. Shillaber, South Danvers, was similar.

No. 75, by Abby E. Stark, South Danvers, was an example of a good thing injured. It was a fine specimen of the old favorite, Begonia Evansianum, or Resurrection Plant, the earliest and best known of that charming genus. Left simply growing in its pot, it would have been beautiful, but was disfigured by binding a quantity of flowers and foliage round the pot, detracting greatly from the good effect it might have otherwise produced.

No. 78, by C. A. Becket, South Danvers, was a good dish of flowers, and

No. 90, by S. Driver, Danvers, was a very pleasing boquet.

No. 84 was an excellent basket by Ella F. Adams, South Danvers.

No. 98, by George Poor, South Danvers, was the best specimen of Asters potted whole, (speaking after the manner of cooks,) and was quite pretty; but there was rather too much labor for the result gained.

No. 109, by H. K. O. Hodgkins, South Danvers, was the only remaining boquet worth any notice, and was very fair.

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A very good specimen of the "Dusty Miller," a species of Senecio, was shown by Jane L. Stevens, South Danvers, but seemed not to be entered for premium, not being numbered. It was unusually well grown, but the plant itself is not very interesting.

The Committee know of nothing further to report relative to this department, and the foregoing is therefore

Respectfully submitted.

C. M. TRACY,
S. P. FOWLER,
S. DRIVER,
R. BROOKHOUSE, Jr.,
WARREN M. JACOBS,
JOHN S. IVES,
} Committee.

South Danvers, Sept. 25, 1861.

CRANBERRY CULTURE.

The Committee on Cranberry Culture respectfully report:—

John D. Hildreth of Manchester, and John L. Colcord of South Danvers, offered their cranberry grounds for the Committee's inspection and consideration. Their statements accompany this report. Two of your Committee visited these grounds on the 28th of September. The fruit had not then been gathered.

They found several varieties on Mr. Colcord's grounds. The cherry fruit appeared much the best, it being larger and much richer in color than any other. A large portion of the

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fruit was of this kind. Another sort growing there was lighter in color and of smaller size. It was neither a bell nor a bugle shaped variety, but something between the two. The berries were even more numerous on these vines than on the others, but it is not certain that they would yield a larger measure of fruit to the square rod.

The vines on Mr. Colcord's small plot of ground were healthy and very fruitful. Considerable care may be needed to keep their future condition good, as the ground is covered with moss that grows rapidly, and which may yet overcome the vines so as to seriously injure them. The soil is probably kept too wet and too cold in summer. A greater extent of drain on the outside of the meadow, so as to completely cut off the flow of water from the higher lands, with an outlet sufficiently low to take the water at least two and one half feet lower than the surface, would be desirable. If the soil had been covered three inches deep with sand or gravel before the vines were planted, there would have been little growth of moss, and the experiment, though costing more, would have proved more profitable in future years.

On visiting the grounds of Mr. Hildreth, we found unmistakable indications of patience, perseverance and laborious energy on the part of the proprietor. We will not undertake to give here a narrative of his labors, or an extended description of his grounds. Though his meadow soil naturally produces a great abundance of very troublesome weeds, his cranberry grounds were kept remarkably clean. A large bed of vines, set last year, were growing finely, and looked as nice as a newly swept lawn. The vines of the beds in fruiting—including the one entered for premium—were very luxuriant, and covered the ground entirely.

They were loaded with a full crop of very large and nice fruit. Most of it is of an egg-shaped variety. The berries of this kind are of the largest size. A basket of this fruit was shown at our County Exhibition, this season, where it attract-

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ed great attention, and called forth many words of admiration from the numerous visitors.

We saw very fine specimens of the bell cranberry on Mr. Hildreth's grounds. A portion of the vines on the ground entered for premium are of the cherry variety. The berries were large, and highly colored, and the yield abundant. In short, Mr. Hildreth's success is admirable; and others will, we hope, profit by so good an example.

In a subsequent statement, under date of Oct. 5, Mr. Colcord writes:—

"I have picked three rods, and they yielded, by measure, three bushels, three pecks and three quarts of cranberries."

"The crop last year was injured by an early frost. We did not have but five or six bushels, I think."

The Committee recommend the award of fifteen dollars to John D. Hildreth, and ten dollars to John L. Colcord, for their experiments in cranberry culture.

NATHAN PAGE, JR., CHAIRMAN.

STATEMENT OF JOHN D. HILDRETH.

The meadow on which I have cultivated the cranberry, was formerly a bog swamp. In 1854, I cut a ditch through the middle, four feet wide and three feet deep. In 1857 I cleared up a piece. I dug it over, turning the top under from fifteen to eighteen inches deep, and cut smaller ditches from the outer edge of the swamp to the main ditch. I planted this piece with potatoes two seasons. In the spring of 1859, I dug the ground over, took out all the weeds, then graveled it over from two to three inches deep; took vines from natural cranberry meadows, selecting them from places where the berries grew the largest and thickest, separated them, and cleaned out all the grass. I set them in rows one and a half feet apart,

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and from eight to ten inches apart in the rows. I kept the vines free from weeds, by frequent weeding and hoeing. I flowed the meadow from November till the 28th of May, 1860, when I let the water off. The vines were green and bright, and in July some of them blossomed. I kept them free from weeds by weeding—the runners from the plants preventing my using the hoe. I gathered this fall (1860) about one half bushel of cranberries. I flowed the meadow the last of October, 1860, and let the water off the 10th of May, 1861. I did nothing more to them till I gathered the crop in October. The average yield was one bushel and four quarts to the rod. The quality of the land is black swamp muck, varying from one to ten feet in depth. The expense of clearing and planting the twenty rods was about fifty dollars. The expense of weeding and culture was near thirty dollars.

JOHN D. HILDRETH.

Manchester, Oct. 11, 1861.

STATEMENT OF JOHN L. COLCORD.

This experiment, which I enter for premium, in the cultivation of the cranberry, on five rods of lands, on the farm of the late John Jacobs.

In 1848, the turf was removed, the meadow turned with a spade, the vines set in rows, and the meadow flowed in winter. The whole expense, spading and weeding, was twelve dollars. After 1852, they increased yearly. The largest crop was twenty bushels. The present year it is estimated at sixteen bushels.

JOHN L. COLCORD.

South Danvers, Sept. 24, 1861.

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COMPARATIVE VALUE OF CROPS AS FOOD FOR CATTLE.

The Committee on the comparative value of crops as food for cattle, as compared with English Hay, and also on experiments in determining the value of green corn fodder for the production of milk and butter, would report that they have received no applications for the premiums on the above-named experiments, nor any communications whatsoever on either subject.

It is a matter of no small consequence to the producer of beef, milk and butter, to understand the easiest method of production; but, important as the matter appears, there seems to be very little light thrown on the subject by the farmers of Essex County. For, notwithstanding the same premiums have been offered for a long series of years, the Committee have not been able to find the first claimant for those premiums.

It certainly appears as though the farmers think the thing will not pay; and if tha is the fact, you may rest assured they never try it.

In conclusion, we most respectfully beg leave to suggest that, (as to the knowledge of the Committee, the above premiums have never been claimed nor experimented for,) the Society raise the grade of the above premiums, until, in the judgment of the Trustees, they shall be ample to call forth competition and experiments which will prove beneficial, not only to the Society, but to all who may choose to take advantage of such experiments.

J. LONGFELLOW, Chairman.

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SWINE.

[The following report of the Committee on Swine was not received in season for insertion in its proper place.]

The question whether the raising of pork in Massachusetts can be made profitable, has its ayes and its noes; and your Committee will be found among the former; that is, we believe it to be so, in a majority of any given number of years, if the farmer will bring into requisition the skill and judgment which is necessary to make any other branch of his business profitable.

Every farmer, in our opinion, should raise pork sufficient for his own family use, and some more; for, as we said before, in a majority of years, he will find it a paying business.

He should be uniform in the amount of stock he keeps, not because he has one year made twenty dollars by fattening two hogs, the next year keep twenty, expecting by them to make two hundred; neither because this year he has made a loss in fattening his pork, clean all out, determined to keep no more hogs until corn is cheaper or pork brings a better price; for when that change comes, he must make a fresh start upon the very top of the market. He must pay ten dollars for a long-nosed Western shoat, weighing one hundred pounds; or, if he cannot make up his mind to pay ten dollars for a good case of hog cholera, he must pay five dollars or more for a six weeks old pig weighing thirty pounds.

Farmers, too, should more generally breed their pigs, as well as fatten them; for we believe that quite as much money is made by the former as by the latter. The present year's prices afford proof of that fact; good pigs in the spring, at five weeks old, sold readily at five dollars; and now in the fall that we are having to sell our pork at six and seven cents, (paying very little or no profit for fattening,) we find that those who have attended to both have made it a fair business.

While your Committee would not express a very decided

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preference for any of the breeds now claiming our attention, we would say that our own experience for the past ten years has led us to think very favorably of half breed Chesters for fattening. We would take a full blood Chester Boar, with any deep well-marked Sow, (such we have very often found among the Columbia County hogs); from them we will get a variety of pigs that, with liberal and judicious feeding, will weigh, at the age of seven or eight months, three hundred pounds or more.

There were a large number of Swine entered for premium, (about fifty,) and many of them very superior animals, far exceeding any former exhibition. The Committee found it no easy thing to determine who should be the successful competitors.

P. R. Basford, of South Danvers, entered a very fine lot of Swine, and although, in the opinion of the Committee, he was not entitled to a premium, yet we would say he presented a stock of Hogs of which he might well be proud, and that he is deserving the thanks of the Society for adding so much of interest to that department of the exhibition.

Henry A. King, of South Danvers, exhibited a fine breeding Sow, remarkable for her prolific qualities, but as the Committee felt that her success was owing in a great measure to the good management of Mr. King, we had to pass him in our favors, for the premium was for the best *Breeding Sow*, and not for the best *managed* breeding.

David S. Tenney, of Newbury, had a very fine Boar of the Stickney breed, which we understand is making his mark in that part of the County.

Your Committee would recommend that sufficient and suitable pens be erected on the ground for the exhibition of Swine. We can see no more propriety in lifting up our Hogs, on boxes of carts four or five feet from the ground, with no chance to see them except through a knot-hole in the side, or

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through slat work upon the top, than there would be in placing our Bulls or fat Oxen in that position.

PAUL TITCOMB,

For the Committee.

MANURES.

The Committee on Manures report that there was transferred to them, by the Committee of last year, the statement of Benjamin P. Ware of Marblehead, of his first year's experiment upon the proper depth of applying manure. As the whole experiment is to extend over a period of three years before any premium can be awarded, it is, of course, too early to speak of Mr. Ware's experiment, except to express the hope that it may be carried through, as the results, in the hands of so careful a cultivator, cannot fail to be of practical advantage.

Mr. Ware enters, for the general premium of the Society, an additional lot of land adjoining the five lots in course of experiment for three years. He shows by this experiment the benefits of a liberal supply of manure, and the comparison he has instituted in this respect, commends itself to the Committee as worthy of the first premium, of $15. His statement will be found replete with interest. To understand the treatment of the five other lots, which which No. 6 is compared, reference may be had to the report on the Treadwell Farm in the Transactions of 1860.

The Committee are happy to say that having learned that Richard S. Rogers had instituted a series of experiments in top-

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dressing, upon his farm in South Danvers, they have been favored by him with a statement hereto annexed, showing the results of the same. From these experiments of two consecutive seasons, it appears that green cow-manure has, with him, proved the most efficient fertilizer as a top dressing—a fact which cannot but excite surprise and attention, as being so widely at variance with the general practice and theory. But *facts* are what is wanted, and they should receive our candid and careful consideration. In confirmation of the experiment of Mr. Rogers, we will quote from the Journal of the Royal Agricultural Society for 1860, part 2d, page 342, a note to a prize essay, by Professor Turner, on the application of manure to the farm :—

"I find the action of manure taken fresh from the yards in July so satisfactory, that I feel no inducement whatever to keep back the more costly, well-rotted manure for this purpose. With the uncertainty how the season may alternate between showers and a powerful sunshine, I cannot wish the ammonia in the dung to be in a forward state of development. If the supply of food is small at first, but increasing as the herbage grows round, through and over the dung, waste will be most effectually prevented."

We commend the above views in connection with the experiment of Mr. Rogers, to our thinking farmers. The experiment has been carefully made, and the statement of it is admirably drawn up. We take great pleasure in placing it upon our records, in the Transactions, confident that it will help sustain the high character they have had in the past, and which it is our duty to endeavor to give to them in the future.

For the Committee,

ALLEN W. DODGE.

STATEMENT OF BENJAMIN P. WARE.

Upon the 20th of April, the land, (a description of which

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may be found in my last year's statement,) being sufficienly dry, I ploughed it eight inches deep, and then harrowed it. May 30th, I cross-ploughed it, harrowed and dragged it, which left the land in good condition for the seed. June 1st, I sowed with orange globe mangolds in drills, twenty inches apart, ten drills in each lot, using no manure upon any of the five lots. I propose to continue the experiment upon lot No. 6, by the spreading upon the furrows, after the cross-ploughing, fine compost manure, composed of meadow mud, sea-kelp and stable manure, of equal parts, the whole drenched with night soil, forked over several times until well mixed and pulverized, at the rate of nine cords per acre, which was harrowed in. In all other respects, this lot was cultivated precisely as the other five. Hoping by this experiment to prove the profit or loss of the annual use of a liberal quantity of manure, in comparison with none at all or once in three years, the experiment on this lot I respectfully offer for the Society's premium, independent of the premium offered for three year's experiment on the other five lots.

The crop was hoed three times, and weeded by hand twice during the season. At the second weeding, the plants were thinned to six inches, and all vacancies were filled by transplanting.

Oct. 29th, the crop was pulled, topped and thrown in heaps, where it remained one day to dry before weighing.

Lot No. 1	produced	3170 lbs,	at the rate of	25	tons, 720 lbs.	per acre
2	"	3160	"	24	" 1560	"
3	"	3200	"	25	" 1200	"
4	"	2810	"	22	" 960	"
5	"	2110	"	16	" 1860	"
6	"	4500	"	36	"	"

Thus showing a balance in favor of lot No. 6, as compared with lot No. 5, (where no manure was applied last year,) of 19 tons 140 lbs. per acre, which, at $8 per ton, the market

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value this year, (much less than last, or many previous years,) would amount to $152 56
Deduct value of nine cords manure, at $5, 45 00

Net profit in favor of the manure for this year, $107 56
The effects of manure upon the second year's crop, may be seen by deducting the weight of the crop of No. 5 from the crop of No. 1, which is 8 tons 860 lbs., at $8, 67 44

Which, added to this year's profit, makes a total of $175 00 in favor of the liberal use of manure upon one acre against using none.

A SYNOPSIS OF THE WEATHER DURING THE LAST SEASON.

	First Third.	*Second Third.*	*Last Third.*
MAY.....	Moist.	Dry.	Moist.
JUNE.....	Moist.	Dry.	Dry.
JULY.....	Very dry.	Moist.	Moist.
AUGUST.....	Moist.	Moist.	Moist.
SEPTEMBER.	Dry.	Dry.	Dry.

Marblehead, Nov. 12, 1861.

STATEMENT OF RICHARD S. ROGERS.

In consequence of a generally expressed wish to learn my second year's results in top-dressing of grass lands, I am induced to give the results of a series of experiments made by me for two successive years—the first in 1860, which was published in the "New England Farmer" of February of the present year,—and of those made this season; and for the better information of those who may not have had an opportunity of seeing them at the time they were published, I have thought best to embody them in the present statement. They were as follows:—

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Messrs. Editors:—There is no subject in Agriculture deserving of more inquiry, and of greater importance to the farming interests, than the knowledge of the best kind of Fertilizers to be used for top-dressing grass lands. As yet, but little is actually known by which to arrive at any practical results for obtaining the largest crop of grass.

I have read very carefully the remarks and discussions had at the several meetings in the State House on the subject, and as yet am far from the information desired. Theories and crude speculations will not enlighten me in the case, and it is only actual experiments and comparison of the several kinds of fertilizers in general use, that can afford the valuable information so much wanted by every farmer. When these experiments are made, and clearly explained, they will open to us a knowledge of vast importance. For what crop is there of greater value than the hay crop? With the present implements now used in husbandry, none can be more easily produced, for the means are within the reach of every one, either by owning or hiring the best mowers, tedders, and other machines necessary for the purpose.

The desire of knowing something more definite and practical on this interesting subject, induced me, the last season, to institute, in a small way, a series of experiments, in the hope that I might derive some benefit myself and be useful to others. Accordingly, in April last, I selected a field best adapted to the purpose—very uniforn in the sward, free from shade and other objections—and staked out five several lots, each measuring 250 feet long by 45 feet wide, and top-dressed them with the various fertilizers, as follows:—

No. 1.—2 cords of manure, well rotted and mixed with 1 1-2 horse-carts of soil.

No. 2.—120 bushels leached wood ashes.

No. 3.—2 cords green cow manure, the droppings of only a few days before.

No. 4.—80 bushels unleached or dry wood ashes.

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No. 5.—255 lbs. pure Peruvian guano, mixed with 1 1-2 horse-carts of brook mud.

The cost or value of the top-dressing, for each lot, was as near ten dollars as possible. The grass was very carefully cut and made—the first crop in July, the second in September—and accurately weighed, yielding as follows:—

	1st Crop.	2d Crop.	Aggregate.	
No. 1	790 lbs.	380 lbs.	1170 lbs.	Compost.
2	680	440	1120	Leached ashes.
3	960	640	1600	Green cow manure.
4	900	550	1450	Dry ashes.
5	1300	370	1670	Peruvian guano.
	4630	2380	7010	

You are aware the early spring was very dry, and quite a drought prevailed during the months of April and May. This no doubt retarded vegetation, and checked, particularly, the fertilizing qualities of the ashes, as they laid in the sward for a length of time as dry as when first spread. The copious rains afterwards produced a wonderful change in thickening up of the grass. The guano dressing, you will observe, produced much the largest quantity on the first crop, although very little more than the green cow manure with the aggregate of both crops.

The second mowing of the guano lot disappointed me, and its short comings on the second crop almost conclusively proved that it had lost much of its fertilizing properties in the production of the first crop of grass. It would not surprise me, on the return of the next season, to find the green cow manure lot superior, and more reliable, than either of the other fertilizers as a general dressing. Should the return of the next year's mowing result as I anticipate, I may possibly trespass upon your valuable paper at a future day."

Having given the statement of 1860, I now proceed to show

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the results of the present season, wishing it to be distinctly understood that no additional top-dressing of any kind has been applied since the spring of 1860:—

	1st Crop.	2d Crop.	Aggregate.	
No. 1	850 lbs.	240 lbs.	1090 lbs.	Compost.
2	980	420	1400	Leached ashes.
3	1300	450	1750	Green cow manure.
4	1350	540	1890	Dry ashes.
5	730	140	870	Peruvian guano.
	5210	1790	7000	

In order to show this year's results, the stakes were very carefully preserved, and great care observed in mowing the several lots, and especially as to the true weight of each. It will be observed that the difference in yield of the aggregates of 1860 and 1861, is very small—the former being 7010 lbs., the latter 7000 lbs., and yet it will be perceived, that there is a greater difference in the results of the several fertilizers used in these experiments; but when looked at separately, this difference is satisfactorily accounted for.

Having already given a statement of last year's results, as well as those of this year, I shall now confine my remarks principally to show where this difference happens. On looking over the results, it will be found mainly in the falling off of the guano dressed lot, and in the great increase in the ashes lots; for the guano lot gave this season, on its first cutting, only 730 lbs. (against 1300 lbs. last year); on the second, only 140 lbs. (against 370 lbs). The dry ashes very much increased—the first giving 1350 lbs. (against 900 lbs. last year); on the second, 540 lbs. (against 550 lbs). The green cow manure did well both seasons. The leached ashes likewise did well.

I am satisfied, from a close observation and from practical results, that *Green Cow Manure* is one of the best fertilizers, and the safest to be used for top-dressing of grass sward.

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The compost lot resulted about the same both years. The results of the two years—1860 and 1861—will be found as follows :—

	1860.	1861.	Aggregate.
No. 1	1170	1090	2260
2	1120	1400	2520
3	1600	1750	3350
4	1450	1890	3340
5	1670	870	2540
	7010	7000	14010

From the foregoing statements, the Dry and Leached Ashes and Cow Manure show the best results as fertilizers; and, as stated last year, had the months of April and May given their usual quantity of rain, instead of being very dry, the ashes, particularly, would have added very much to the crops;—but vegetation was generally checked, and the ashes did not act so powerfully as they otherwise would.

The Peruvian Guano is a *great stimulant,* and can be used for some purposes to great advantage; but as a durable or permanent top-dressing for grass—excepting for one crop—I should doubt its efficacy. As a proof, witness the first cutting last season, which was 1600 lbs., and the first cutting of this season, only 730 lbs.; and the second only 140 lbs. In fact, the appearance of the sward at this moment, dressed by the guano—and the other lots by ashes and green cow manure—is most striking: that by the guano is almost entirely dry and seared, while the others are clothed with almost luxuriant verdure.

Having turned my attention very particularly to top-dressing of my grass lands, for several years past, I may be permitted to speak very confidently of the great advantages to be derived from practising it; and perhaps have realized as much benefit as any one from pursuing it.

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The deep interest I have felt in the subject, must be my excuse for such a lengthy communication.

OAK HILL, *South Danvers, Oct.* 29, 1861.

ROOT CROPS.

Forty years ago, double the claims for the culture of Roots were presented, to what, by dint of application, we have been able to obtain. When the Littles of Newbury, the Putnams of Danvers, and the cultivators of the fine lands of West Newbury, were in the field, claims were presented worthy of notice.

Such statements as have come to our possession, are appended to this report. They fully explain the culture sought to be rewarded. The Committee are fully aware that large crops may be grown by extravagant applications of fertilizers and labor. This is not the kind of culture which they deem most worthy of encouragement. Crops grown in the ordinary mode of farm labor, which *will pay* for what is done to them, are what we would reward.

We are well assured that there are some crops grown in the State (tobacco, for instance,) which *pay* better than any grown by the farmers of Essex. But we think no friend of humanity, when he considers the evils consequent upon the use of this filthy weed, will deem it worthy of encouragement. It is antagonistic to decency, comfort, health, and even life itself. It is evil, and only evil, continually.

The first claim presented to our notice was by Hiram A.

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Stiles of Middleton, for the best conducted experiment in raising Summer English Turnips for the market. This is so well explained by Mr. Stiles, that we deem it unnecessary to say more than that it is worthy of the best reward in our power to make, viz : the sum of $8 00.

The next was the culture of Cabbages. Two claims for this came to our hands—one by Samuel A. Merrill of Salem, the other by Samuel Hutchinson of South Danvers. Both of these gentlemen raised magnificent crops; and we would gladly have rewarded both, if we had been at liberty to do so. But, judging of the crops as we saw them in the field, and taking into view the condition of the land, and the applications made thereto, we prefer the crop of Mr. Hutchinson, and award to him the sum of $8 00.

There is no man, within our knowledge, that understands how to obtain a large crop, better than Mr. Merrill; but for our own use, we prefer a moderate size head of cabbage, weighing half a dozen pounds, to one that weighs fifty pounds.

Two claims for Onions were presented to us—one by Mr. Merrill, before mentioned; the other by Mr. Courtis of Marblehead. Mr. Merrill grew, on one acre, five hundred and fifty bushels. Mr. Courtis grew over nine hundred bushels. Knowing no difference between the quality of Marblehead onions and Salem onions, we feel constrained to give the preference to Mr. Courtis' crop, because it measured more; and award, accordingly, to him the sum of $8 00.

We believe both of these gentlemen did all they could, by the application of labor and fertilizers, to enlarge their crops; and we congratulate them on their success—especially as the maggot still continues its operations on the fields of Danvers, and other towns around. Time was, when the onion crop brought to the pockets of the cultivator more money than any other crop grown on our soil; but the destroyer came and the onion died.

For the other crops enumerated in the list of premiums offered, we have received no claim conforming to the regula-

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tions prescribed by statute; though we must say, that some of these requirements are extremely burdensome and inconvenient. We know of many good cultivators who have been deterred from presenting their claims, by the complicated machinery to be wrought to secure an award.

Respectfully submitted by

J. W. PROCTOR,
A. M. BODWELL,
HANSON ORDWAY,
} COMMITTEE.

Salem, Nov. 14, 1861.

NOTE.—Mr. JONAS HOLT, of Andover, was associated with the Committee in making the awards upon the crops of Cabbages and Onions.

STATEMENT OF H. A. STILES.

Having presented to your notice, for inspection and premium, my crop of Summer English Turnips, raised for the market, I submit the following statement:—

Some of the earliest and best varieties of turnips, for market and table use, with which I am acquainted, are the following: The Flat Dutch is a good sort for early sowing. It grows to medium size, and when of quick growth, the quality is decidedly good. The Strap Leaved varieties are of two kinds—the White and the Red top. I am informed by Messrs. Comstock, Ferre & Co., (extensive seed growers in Wethersfield, Ct.,) that they have been cultivated at their gardens for about twenty years. These are taking the place of other varieties, and are the best of the table sorts. Their growth is quick in a congenial soil—small top, and tap root—fine grained and of delicious flavor.

The Purple top, English Norfolk and White Globe are better for the main crop, or field culture for stock feeding. The best

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for this use, I think, is the Globe Turnip, which I have grown to the size of a half-peck measure, without being wormy or spongy. It is a white, smooth turnip; a quick, strong and uniform grower, and of good quality. They are sown broadcast in fourteen inch drills, or furrows made with the plough, where manure is spread, and the seed scattered upon it by the hand. Another mode is, putting the seed into the hills with corn or potatoes.

The turnip is easily affected in form and flavor, by soil climate, and mode of culture. Sowed in spring, with corn, the turnip, when matured, resembled the Ruta-Baga. Sowed by a machine upon the surface where manure was spread, and raked fine, the same variety of turnip was nearly *flat*, of handsome form. The reason of the former shape, was, the roots spread *through* the manure, and even went *below* the manure for moisture, while the leaves expanded into the atmosphere and sun for nourishment. Generally if the season be dry, the tops are small, and the form of turnip more flat than in a wet season. Broadcast sowing in spring is attended with difficulties which render it impracticable:—

1st, Because room may not be given for each plant to thrive.

2d, Weeds are apt to spring up, overpowering the crop.

3d, The ground may be heavy, baked or scorched; and for these evils, the remedy, which cannot be applied, is, thinning the plants, weeding and stirring the soil.

In raising the fall crop, some of the evils alluded to are, of course, less frequent; but by far the largest crop may be realized by drill culture. The rows may be as near as eight inches in width; the seed sown with a machine; the plants thinned, leaving them from six to ten inches apart. By this method, every portion of the crop may be made to thrive equally well, by the aid of fertilizers if desired.

Putting seed upon manure in furrows made with plough, or otherwise, is attended with bad results, because, although producing well for a time, in pulling from the drills, other plants are disturbed—the strength of manure exhausted—and the

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consequence is, slow growth and small turnips, especially if the weather be dry.

To get early turnips free from worm, is the main object; and so seldom is it obtained, that three-quarters of the farmers in the County of Essex abandon the idea of raising them for their own consumption—much more for the market.

When in market, I have been amused to hear remarks, and questions propounded like the following:—"You must have stiff land to produce such turnips. Did they not grow upon that meadow of yours?" Says another, "Your land must have been very poor, upon which you could raise nothing else." Again, "The Lord must have favored you more than others, for we cannot raise them." "You must have salted your land abundantly." Finally, "You must have some secret of which you will not inform us."

Having no secrets to reveal—and attributing nothing to the immediate interposition of Divine Providence, unless it be a *frown* in sending the maggot for the abuse of His past mercies —I would state that my method of culture is as follows:—

The land is a light, sandy loam. The sub-soil is a coarse, gravelly loam, and leachy. This land is excellent for the corn crop, or most other crops grown in this county. The amount of land seeded to turnips, the present year, is 1 3-4 acres and 10 square rods.

No. 1, new land, contains 103 rods. Ploughed April 9th, using the Michigan plough, No. 85; depth, 7 to 9 inches. Sowed April 13th. Two cords of manure, pure, from the cellar last autumn, was spread evenly upon the furrows. Also 125 lbs. No. 1 Peruvian Guano, well mixed with five or six bushels of damp soil, and spread very evenly with the hand, and then harrowed thoroughly across the furrows with a light iron tooth harrow. The brush-harrow was then used to smooth the surface for sowing, which was done by a machine, in drills from sixteen to eighteen inches in width. Kind of seed—Strap Leaved Red and White top; quantity of seed to the acre—about a pound. Weeding and thinning the plants to a

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distance of three to five inches, was done in the latter part of May. Stirring the soil and cutting weeds with the hand hoe, was performed about June 10th.

Lot No. 2, containing 72 rods, second year seeded to turnips, was spread over with about two cords of manure of similar quality to lot No. 1, together with 120 lbs. of Mape's Nitrogenized Superphosphate of Lime.

Lot No. 3, contains 73 rods, and has been seeded to turnips seven years in succession. Applied 1 1-2 cords of manure; also, 125 lbs. of Coe's Improved Superphosphate of Lime.

Lot No. 4 contains 42 rods, and was spread with about one cord of manure, together with forty pounds of Peruvian Guano and two or three bushels of wood ashes. Sowed April 5th, being the third season to turnips.

From May 15th to June 15th, the plants upon the new land were forward, very fine, and promising. June 14th, thirty bunches were pulled for the market, some of them measuring three inches in diameter. At this period, and a few weeks following, the drought was very severe; and two or three days previous to the rain, the weather was exceedingly scorching—almost ruining this piece of turnips; and, consequently, but little value, comparatively, was realized from it.

Guano contains a large amount of ammonia, and tends rather to large development of leaves and stems. I have grown a good crop from Guano alone, spreading at the rate of two hundred pounds to the acre. As a *help* to other manure, it may be used with good success. But, so far as my experience in fertilizers is concerned, I am of the opinion that Mape's Superphosphate of Lime is the best for turnips.

The idea that turnips will not do well, raised upon old land, is wrong; or that the land must be poor, and the more sandy the better, is also erroneous. The land should be good, and in good heart; and the turnip, to be of the finest quality, should derive its support mainly from the soil and atmosphere. More manure than is needed to give the turnip vigorous growth, is injurious to the crop, both because it tends to invite,

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or create, worms, and because its causes large bulbs, rather impeding the growth of the turnip, causing it to be coarse-grained, and imparting to it a strong flavor.

In ploughing land, new or old, for the growth of turnips, but little danger need be apprehended in ploughing it too deep, especially if the sub-soil be loamy. But, though an advocate of deep tillage, discretion, of course, must be used, if other crops are to be grown in the same soil.

Turnips may be sown as early in the spring as they can be got into the ground, without any risk of having them destroyed by frost. Sowing some seed early in April, which germinated finely, snow fell upon them to the depth of three inches, some of it remaining two or three days—the ground also being frozen, forming a crust half an inch in thickness, without materially injuring them.

Plants may be started in hot-beds, and transplanted at the time of sowing seed in April; but particular care must be used in having them acclimated, or but little, if anything, will be gained in forwarding. If they are forced beyond their natural growth, by the use of manure, large shoots will appear, growing to the height of two or three feet, when buds, blossoms and seeds will appear, defeating the object of early enlarging the bottoms. In the culture of turnips upon land that is doubtful as to producing them free from worm, much may be gained by removing the surface soil from about the roots, so that the turnip may be formed above ground, which is not an unnatural position.

Plants may be safely thinned, generally, when the rough leaf appears. The crop should be kept free from weeds, perhaps until the first of July, when they may be suffered to grow without injury, as seven-eighths of the crop will be removed during the month; but should be pulled or cut, and carried off, or burnt upon the soil, and not ploughed under—as all substances undergoing decomposition, not intended for plant food, should be kept from a pure soil.

For the last two or three years, the maggot has more or less

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infected the turnip. It is caused by a fly. My reasons for this assertion are—1st, because none were discovered in our soil before the ravages upon the onion crop commenced; 2d, they devour the earliest and most tender plants, upon new land, first; 3d, there are two periods, at least of about three weeks' duration, in which time the turnip is not molested.

In preparing turnips for the market, they are pulled in the morning, and taken to the stream of water running through the lot, over which a building is erected to shelter from the sun and rain. The tap root being cut off, the turnips are passed along to be washed one at a time, by a brush made stiff with bristles, which is the most thorough and expeditious manner of cleaning. In bunching, uniformity in size is very important. This is secured by selecting the largest only in the lot, two or three times a week.

The expenses of the turnip culture, marketing, &c., will depend upon the distance from market, the kind of labor employed, the thoroughness of cleaning, and the quantity grown. It may give satisfaction if contrasted with the Corn crop; and in the culture of each crop I shall allow each man $1 per day, —the quantity of land to each crop, one acre.

1st, The average quantity and value per acre of

CORN CROP.

40 bushels at 80 cents per bushel,	$32 00
Stover,	20 00
Value,	$52 00
Expenses.	
To ploughing land,	$3 00
Barn cellar manure,	30 00
Furrowing, manuring and planting,	6 00
Hoeing twice,	5 00
Cutting stocks and harvesting,	4 00
Husking, shelling and grinding,	4 00
Expense,	$52 00
Value,	$52 00

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TURNIP CROP.

5500 bunches at 5 cents per bunch,	$275 00
Expenses.	
To ploughing land,	$3 00
Barn manure,	15 00
Fertilizer,	6 00
Spreading manure,	4 00
Sowing seed,	1 00
Weeding, &c.,	10 00
Pulling and cleaning for market 18 loads at $2 50,	45 00
Marketing 18 loads,	45 00
Expense,	$129 00
Value,	275 00
Net profit,	$146 00

I find by my records that I raised and sold, in 1858, 10,000 bunches of turnips, at a fraction over five cents per bunch. The quantity of land was about the same as this year, though not all of it under effective cultivation. I have sold, this season, 6,936 bunches, only receiving for them $276 25.

The quality of the turnips, this season, has been inferior to those in former years; but for their general quality, I insert, by permission, the testimony of J. F. Reed & Co., who have long dealt extensively in the vegetable market:—

"*Salem, Aug.* 26, 1861.

This may certify that having been annually supplied with turnips by H. A. Stiles, from June 15th to the present time, we have regarded them as being *fully equal*, if not *superior*, as an early crop, to any brought into market, or grown in this county."

From all that has been stated above, it appears that the most important requisite to the successful culture of the turnip, is —1st, suitable land; 2d, good, fine manure, spread upon the

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surface, and harrowed fine; 3d, good seed, of the best varieties of turnip; 4th, attention and care to the crop while growing.

Adhering to these rules,—which are not only applicable to the turnip, but to other vegetables,—our markets will be supplied with the finest quality of turnips, which will be more and more appreciated by the public, and the growers thereof will be abundantly rewarded.

Middleton, Sept. 9, 1861.

STATEMENT OF SAMUEL HUTCHINSON.

To the Committee on Root Crops:—

I present for your inspection a field of Cabbage, about sixteen square rods less than two acres. The land is of ordinary quality. It yielded a crop of corn the last season. In the spring it was ploughed six inches deep. It was fertilized by the application of common barn manure and leached ashes—using three hundred bushels of ashes on the lot. I look upon them as particularly well adapted to the growth of cabbage. It was furrowed in rows three and a half feet apart, and planted in hills two and a half feet apart in the rows; making, if I estimate right, four thousand five hundred hills to the acre. At the second hoeing, the plants were thinned to two in a hill; and at the next hoeing, only the best one was left. They have been kept free of weeds entirely, and have grown luxuriantly and with remarkable equality—almost every plant forming a fair head, many of them a foot or more in diameter. Many of the plants were of the Savoy, or curly variety; generally the field embraces the best varieties grown in this vicinity. There is about them a beauty of growth that gladdens the eye. There may be on some lands, that have been long cultivated and highly manured, a handsomer growth, but I have never seen one.

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I have sold the entire crop, as it stands in the field, to Irish laborers, for the sum of two hundred and seventy-five dollars —which is about fourpence a head, supposing there to be a head to each hill;—reserving two rows across the upper end of the field, for our own use. This gives me one hundred and forty dollars an acre for the use of my land; deducting $50 for the manure applied, and allowing $40 for the labor of cultivating. I have confidence the purchasers will make a good bargain, and hope they will, as I am satisfied with the income I have derived from the land.

South Danvers, Sept. 23, 1861.

[NOTE.—The Committee viewed this crop on the field, and found its appearance to correspond fully with what is said of it.—J. W. P.]

STATEMENT OF GEORGE B. COURTIS.

The ground on which my crop grew, contains, by actual survey, 159–36 rods, being but a small fraction less than an acre. It has been planted with onions for the past five years, and has generally yielded large crops; which I attribute, in a great degree, to the heavy applications of rich manure it has annually received, to which, of course, I add clean culture.

The ground was prepared for the present crop in early spring, (it was not ploughed the fall previous,) by ploughing in about twelve cords of a rich and finely pulverized compost of night soil and muck, each of which had received the action of the winter's frost. I have usually added kelp to my compost heap, but did not this season. After ploughing the manure in, the ground was thoroughly harrowed, then cross-ploughed and carefully raked, immediately after which three pounds of seed of the Danvers Yellow Onion were sown in rows fourteen inches apart.

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In the course of the season, the crop received four weedings, (being twice crawled over and twice walked over,) and four hoeings. I had little or no trouble from the blight or maggot, and my crop ripened down finely. I began to pull about the first of September, and soon began to market the onions. Every bushel of the yield has been carefully measured; and after adding up my daily sales, I find the result to be 764 measured bushels. On testing some loads, and several separate bushels, by weight, for persons who preferred so to purchase them, I found them to average 60 1-2 lbs. to the bushel. The yield of 764 bushels being reduced to the Society's standard of 50 lbs. to the bushel, would give 924 bushels to the acre.

The crop ripening down early, the onions were unusually hard and heavy, (and when sold by measure, purchasers in Boston market are not satisfied unless very full measure is given them,) which accounts for their great weight. As an evidence of the quality of the crop, I may state that between forty and fifty bushels were purchased to grow seed from. My crop was sold mostly in Boston, at an average price of 51 cents a measured bushel.

764 bushels at 51 cents per bushel,		$389 64
From which deduct cost, viz:		
Preparing land and planting (men),	$7 00	
" " " " (team),	6 00	
Seed, three pounds,	9 00	
Weeding, nineteen days,	19 00	
Pulling, three days,	3 00	
Topping, at 2 cents per bushel,	15 28	
Interest on land,	12 00	
Cost of teaming at $1 25 per load of 40 bu.,	23 75	
	$95 03	—$95 03
		$293 61

Marblehead, Mass.

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I certify to the veracity of Mr. Courtis, from personal knowledge of the party; also that I have received evidence sufficient to satisfy me of the correctness of his statements.

J. J. H. GREGORY, Marblehead, Mass.

STATEMENT OF HAZEN AYERS.

To the Committee on Root Crops:

I have a crop of Beets, commonly called Mangol-Wurtzel, covering forty-four square rods of land, near my barn. They have grown luxuriantly, and are devoured voraciously by all animals to which I have fed them. The largest weigh ten or twelve pounds. One square rod yielded eight hundred and thirty-two pounds; which, if I figure right, is equal to sixty-six tons to the acre. I have never raised so large or so valuable a crop of any other vegetable. I am aware that it does not come up to your prescribed rule of half an acre—but such as I have I bring before you.

South Danvers, Oct. 22, 1861.

[NOTE.—The Trustees awarded to Mr. Ayer a gratuity of five dollars for his experiment, and directed the publication of his statement.]

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REPORT OF THE COMMITTEE ON THE IMPROVEMENT OF PASTURE AND WASTE LANDS.

The Committee to whom was referred the subject of the Improvement of Pasture and Waste Lands, propose to confine themselves to but one topic in considering the question before them. They fully appreciate the efforts which are constantly made to bring the large tracts of unproductive land both wet and dry, which occupy so much of the county, into the service of agriculture; and they take pleasure in congratulating the farmers of this section, in their renewed attempts during the past season to subdue their rough and swampy lands, for the purposes of cropping. But they feel that the most important consideration for the agriculturist here is, how he can best convert useless tracts into profitable pasture lands, or restore those which have suffered from over-stocking, or from neglect. While some sections of our State are capable of pasturing more cattle than can be kept during the winter, and thus lose a large portion of their summer feed, in Essex County the reverse is true. Here we can winter more cattle than we can summer. Our pastures are less productive than our hay-fields. And we are not only obliged to overstock the former, but we are induced to resort to that most destructive of all farming operations, the sale of our hay. Except in those instances where, either from proximity to the sea, or from the supply of cities, manure can be cheaply and easily obtained, the neglect of pasture lands, and the removal of hay, must end in great injury to the farm. He whose pastures fail, must sell his cattle. He who sells his cattle will sell his hay. And he who sells both cattle and hay, will ere long find that he must sell his farm.

The improvement of the pasture lands of Essex County is, therefore, a matter of great importance to our farming community. We ought at least to keep them up to the capacity of our hay-mows; and, if possible, we should carry them beyond this.

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It is doubtful whether any general rule can be adopted for the increase or improvement of lands devoted to grazing. The variety of tracts used for such a purpose, creates the necessity for a great variety of treatment; and the question is not so much how can pastures be cultivated, as how can they be cultivated to a profit. It is estimated that four acres of land are required for the pasturage of a cow; and it is probable that in their present condition nearly twice that number are necessary. The price of such land is about twenty dollars per acre. An acre which will serve the purpose of four, should be considered to be worth as much as four. How, then, can the farmer make twenty dollars' worth of land yield as much as eighty dollars' worth? How can he improve, moreover, the quality of his pasture grasses? And how can he economically provide himself with good luxuriant grazing, upon which he can rely during the entire season?

There is no doubt that, as a general thing, the cattle of Essex County obtain a somewhat scanty supply of food from the pastures. Brambles, and bushes, and weeds, and mosses, occupy a very considerable portion of the land called pasture, and are constantly encroaching upon that which is free from this burthen. In the smooth pastures, the grass is short on account of over-stocking, and, in many instances, not nutritious on account of deficient cultivation or entire neglect. We have but little land like that in newly settled countries, where the clearing of a forest is followed by a luxuriant growth of sweet grasses; and hence our business is chiefly with lands which must be restored from decay.

The application of various substances, such as ashes, lime, plaster, bones, &c., as a top-dressing for exhausted pasture lands, has been tried and discussed, until its merits seem to be pretty thoroughly understood. Wherever land is in a suitable condition to receive either of these fertilizers, great benefit arises from a judicious use.

On old worn out pastures, however, something more is evidently necessary; especially where the soil is so far exhausted

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as to be incapable of restoration by rest, and where bushes have obtained the mastery. In such a case as this, resort must be had to the axe and bush-hook, to fire, the plough, manure and seeding.

How far the clearing, ploughing and seeding of pastures can be carried with profit, each farmer must judge for himself. In one or two instances, the experiment has been carried to a considerable extent in this county. A large tract of comparatively level land lying on the Merrimac river has been cleared of bushes, ploughed, and allowed to lie fallow one year. It has then been cross-ploughed, harrowed and seeded with rye and grass. In this case, the value of the land for grazing purposes has been largely increased. In the eastern part of the county, a hill-side pasture has been treated in the same manner; with what success we are unable to learn. It is possible that many acres of land now wholly unproductive, could be brought, by this process, into valuable pastures, without great expense, provided that the work is done in the intervals of more pressing duties during the season. The precise cost cannot be estimated—inasmuch as it would depend very much on the location of the land, and the time occupied in ploughing and fallowing. It is very desirable that some practical farmer should make an accurate return of the expense incurred per acre by this process. If it can be done advantageously, what a vast benefit would be the reclaiming of a few acres each year, on most of our farms. At any rate, we trust the time will soon come when every farmer who prides himself on his corn and hay crops, will learn that a growth of birches, bushes and briars on his pastures cannot belong to any good system of farming.

But one experiment in improving land was brought before the Committee; and this is of a somewhat novel character. It consists of the clearing of old pasture land for the purpose of orcharding—and although it does not come under the question which we have referred to, still it is entitled to careful attention. The experiment was made by Oliver P. Killam of Boxford, and we give his statement in his own words:

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STATEMENT OF MR. KILLAM.

The piece of land I offer for premium is one side of a lot containing ten or twelve acres. The part I cleared was covered originally with whortleberries, sweet fern and briars, interspersed with small oaks, wild cherry, thorn bushes and birches. In the spring of 1849, I commenced setting apple trees on one side, one and one-half rods apart; set over about one-half an acre. The next spring I set out others; and in 1851, I finished setting over the piece I have cleared.

My manner of setting the trees is as follows:—First, I mowed the bushes wherever I intended to set a tree. Then cutting away the roots with an axe, I dug the holes eight feet in diameter and from one to one and a half feet deep. I usually dug the holes the year before planting the trees. When I set the trees, I pounded the sods, and picked out the roots, replacing the soil in the hole, and taking care to set the tree the same depth that it stood in the nursery. I then placed fine soil round the roots, and replaced the contents of the hole. The trees were manured and mulched; and they grew well for three or four years.

At this time the trees began to show signs of blight, which were not removed by digging about them; and I consequently determined to clear all the land between the trees. I commenced this in 1857, in the following manner:

First I mowed the bushes, dug up the roots, and burned them. Then I dug out and cleared off the stones. I then ploughed it, removing all the stones and roots exposed to view, and harrowed it thoroughly.

The expense of clearing the first half acre was:

For one man 1 1-2 days mowing bushes,	$1 50
Two men and four oxen one-half day pulling bushes and roots,	2 00
Two men and one yoke of oxen one day clearing stones,	3 00

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Two days ploughing,	10 00
Clearing stones after ploughing, harrowing and burning roots,	2 00
	$18 50

After it was cleared, I planted it with potatoes and corn. The expense of the crop was:

For five cart-loads of compost in hill,	$5 00
For planting and hoeing,	4 00
	$9 00

Amount and value of crop:

20 bushels of good potatoes,	$10 00
18 bushels of ears of corn,	9 00
	$19 00

The fodder and small potatoes paid for harvesting. In the winter of 1857–8, I cleared another half acre at less expense. And in the June following, I sowed the whole with 13 quarts of buckwheat, and obtained 15½ bushels of clear seed.

Value of crop:

15½ bushels of buckwheat,	$15 50
One ton of straw,	6 00
	$21 50

Expense of crop after clearing:

Seed, sowing and harrowing,	$1 00
Cutting, threshing and cleaning,	1 50
	$2 50

I have cleared the remainder in the same manner, and with nearly the same result; averaging 15 bushels of buckwheat and one ton of straw per acre yearly. I cleared three-quarters of an acre last autumn, at an expense of about $26.

I have manured what I first cleared, for two years, for the

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benefit of the trees; and I am satisfied that they have been improved by it to the full value of the crop raised on the land. By sowing buckwheat, I have cleared the land almost entirely of briars and other noxious plants; and I am convinced that it is a good crop to raise in a young and growing orchard.

The experiment of Mr. Killam is an interesting one, and has been conducted with considerable economy and skill, and with much industry. He has brought a waste piece of land into good orcharding; and his trees show that he has done it successfully. The Committee award him the second premium of ten dollars.

They trust that they will see an increased attention to the reclaiming of pasture lands for grazing purposes, as one of the most important branches of the agriculture of the County.

GEORGE B. LORING, Chairman.

FOREST TREES.

A few years ago, it was thought that our forest trees were fast falling before the woodman's axe, and that it was one of the most important objects to promote their growth. I had the honor, in 1838, to act on a committee of this Society, with the Hon. James H. Duncan and the Rev. Gardner B. Perry, on forest trees; and the report of the doings of that Committee may be found in the Transactions for 1839, awarding a premium of thirty dollars to Mr. Nathan Webster, of Haverhill, for his ten acre lot of cultivated forest trees.

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Having the honor to hold a place on the same Committee, the present year, which Committee not having been called on by the Chairman to attend to any claims for our premiums, it occurred to me to present to the Society some further account of the success of that experiment, and also some observations upon the subject of forest trees in general.

I did not at the time think that the amount of wood and timber in the county was likely to be greatly increased by the experiment; and by the report of the Chairman, as published in the Transactions of 1839, I am led to think they were also nearly of the same opinion; but as he had tried an experiment, and was the only applicant, our first premium, of thirty dollars was awarded.

The land was not well adapted to the growth of the kinds of trees for which our premium was offered. It had never been ploughed, or pulverized, or cleared of roots and rubbish, except one acre. Furrows had been drawn across it, ten feet apart, and in the springs of 1836 and 1837, three pounds of locust seed had been sown; and in the fall of 1837, between one and two bushels of white oak acorns were planted, all of both kinds, along these furrows, in which they were covered with earth. From the locust seed, he supposed more than ten thousand plants came up; but from the acorns, not a single plant!

To secure the germination of the locust, he thinks it absolutely necessary to soak the seed in hot water—of course not too hot; and he he imputes the total absence of young oaks to an early frost injuring the acorns; but as they could be easily found scattered along in rows, and slightly covered, I should rather charge it to the squirrels.

I would suggest to any person disposed hereafter to plant a forest, to completely pulverize the whole soil, and sow the seed broadcast on the furrows, and of various kinds, and at all depths.

As Mr. Webster sowed but two kinds of seed, and but one came up at all, we were called upon to look at only quite a

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number of locust trees, scattered over ten acres of ground; and as these looked rather unpromising, the generous premium must be considered to have been awarded rather to the labor of making an experiment, than to any promised success.

Mr. Webster says in his statement, that in 1835 the land was covered with birches, and some white oak and maple; and on examining the lot a few years afterwards, I was fully of the opinion that the growth of wood would have been quite as valuable, had nothing been done but to exclude cattle from browsing upon the trees and under-wood of native growth.

I again examined the lot on the 13th of the present November, twenty-two years after the first visit and the premium, and I now consider the experiment rather more successful than I had previously expected, so far as the locust is concerned. About one acre, in one corner of the lot, is well covered with locust trees, thirty to forty feet high, and six or eight inches through, and in rather a thrifty state. There was a thin scattering of locust in other parts of the lot; and if locust timber is as lasting for fence posts, and other uses requiring durable wood, as has been supposed, I should think the experiment might encourage the planting of the locust. The quantity and value of wood for fuel would probably have been larger had nothing been done. And if the acre so well stocked with locust is the acre which had been previously "ploughed, and planted with potatoes," it gives a valuable insight into the best mode of preparing the ground and planting. The white birch has now re-assumed its native rights over a large part of the ground, and the white oak and maple are, in a few instances, resuming their places.

I am not aware that any premium has been claimed or paid for the raising of forest trees since the one alluded to; and were it not that the law of the State requires the offering of them, I should suggest the discontinuance of the offer, as without effect, and, so far as fuel is concerned, quite unnecessary.

I am not aware that a single acre of open field, or pasture

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land, has been changed from being an open field or pasture, in this county, within the period of my remembrance, which now extends to sixty years, by any deliberate design, planting or cultivation; and I am hardly aware that an acre has been cut down, cleared, and made a cultivated field or pasture, within that time. But within the last forty years, hundreds of acres have been overrun by the spontaneous growth of forest trees!

In the town of Groveland, it is easy now to show large tracts, over which men now living have held the plough, and swung the scythe and sickle, from which may now be cut from thirty to forty cords of wood to the acre; and by this growth, and the multiplication of fruit and ornamental trees, our landscape now presents a much more wooded prospect than it did forty years ago.

One cause of this great change is the neglect of agriculture, and confining it to fewer acres, since the prevalence of manufactures; another is, the now almost universal use of mineral coal. Most of this increase is the various species of pine.

White pine is a tree of very rapid growth; and I can now cut a frame for a good sized house, from land from which the previous owner cut nearly all the wood which he considered worth cutting in 1838. What were then small trees, of a few feet in height, are now timber. The pine is a very sure and thrifty seedling, and I might now claim your premium for a thousand trees of not less than three years old, all seedlings, and in a most thrifty state—and all growing spontaneously on what was, twelve years ago, chiefly an oak forest. The pine, I believe, never starts from the roots of an old tree, but are in all cases seedlings.

The oak seedling is of slow growth; but still they are constantly renewing from the acorn, in woods of thin growth, and around the margin of oak forests—the leaves affording them a sufficient covering, and the surrounding trees a sufficient shelter from the driving winds and snow; but the most thrifty growth of oak, maple and birch, are from the roots of previous trees, cut down before the life of both root and branches is

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exhausted by age. Crops of wood are now raised with as much regularity and certainty as crops of hay or grain, and are profitably taken off every twenty to thirty years. On thirteen acres of cut off land, which I purchased in 1851 at nine dollars an acre, there is now a crop of wood, principally oak, averaging fifteen feet in height, mostly sprung from the roots of the previous growth, and growing with great rapidity, from their large and abundant roots; while in almost every vacancy the seedling pines, before named, are shooting up their spires, and dispute with the oak for the final possession of the soil.

The white birch and the white maple push out numerous sprouts from almost every tree which is cut down, and spread spontaneously as seedlings, on the road-sides and on the margin of forests. A large hill in full view of my house, which was clear pasture land twenty-five or thirty years ago, is now an unbroken forest.

It belonged to the late Rev. Gardner B. Perry, who, with a view to improving his pasture, caused furrows eight or ten feet apart to be ploughed round the hill, keeping as near horizontal as possible, with the tripple purpose of retaining the rain, ploughing up some of the moss, and manuring the intermediate space by the washing down of some of the soil ploughed up. The plan seemed well adapted to improve a smooth hill-side pasture, which it probably would have done, but that a copse of birches, forty rods off, furnished seed, and the winds did the sewing; and now we see a full grown and heavy crop of birch trees. Another neighbor's intervening lot remained unploughed, and is now smooth pasture land.

Another reason why our wood increases so fast is, as before named, the great increase of the use of coal as fuel. Twenty-one years ago, I was, with one exception, the only householder making use of coal in the town; now it is in use in almost every family; and for the two last years, nearly eight hundred tons have been imported and consumed—taking the place, ac-

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cording to my observation, of about sixteen hundred cords of wood!

Fifty years ago, it was a common thing for the farmers of Essex County to sell their farms, and remove to newer States, in alarm at the approaching scarcity of wood and timber. My father-in-law, who sold his farm in what is now Georgetown, in 1780, and removed to New Hampshire, spent many anxious thoughts upon his old neighbors, how they were to get along when the fast decreasing woods were all consumed; forty years afterwards he returned to this vicinity, without finding any trouble in obtaining fuel! The committee who made the last valuation of this town, report that the wood is little, if any, diminished within the last forty years.

The walnut is a beautiful tree, easily raised from the seed, and of much more rapid growth than the oak. The wood is excellent, both for fuel and timber, and the fruit is highly valued, especially among children; and it is generally a good bearer.

The elm starts readily from the seed, which ripens in great abundance, before the leaves form, every spring, and may be sown and produce a thrifty plant the same year! It is a tree of great beauty, thrives in almost every soil, is of rapid growth, and produces valuable wood, both for fuel and timber. In 1845 I brought two trees under my carriage, both of which I could carry easily upon my shoulder at once, and set them out in the street in front of my house. The largest tree girths, by measurement to-day, one foot from the ground, three feet and two inches. A row of elms from the seed sixteen years ago, set from the garden on the river bank, are now, several of them, twenty feet high and six inches through.

I propose to add a few words upon Worms Injurious to Forest Trees.

Mr. Coffin, in his History of Newbury, gives an extract from the margin of an almanac of 1736, written by the Hon. Bailey Bartlett, which tallies so exactly with a similar calamity

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which visited this part of the county about 1797, that I will first copy it :—

"In the year 1734, a few caterpillars, of a peculiar kind, appeared on the oak trees as soon as the leaves began to grow. In 1735 a much larger number, one hundred to one, were seen, but in this year (1736) the number was astonishing. Almost all the woods in Haverhill and Bradford, (some part of the east end excepted,) the east part of Chester and Andover, many thousand acres of thick woods, had their leaves and twigs of this year's growth entirely eaten up—so that the trees were as naked as in the depth of winter. They were larger than common caterpillars, and made no nests. No river or pond could stop them; they would swim like dogs, and travel in unaccountable armies, and completely cover whole houses and trees. Cart and carriage wheels would be dyed green, from the number they crushed in their progress!"

Mr. Richard Kelley, of Amesbury, in his diary, says, "They are larger than the orchard caterpillar, but smooth on the back, with a black streak with white spots."

I have never seen, in print or manuscript, any account of a very similar calamity which occurred within the memory of the writer.

About 1797, similar worms began to appear upon the oaks, which so increased in three or four years, that the oak wood lands were cleared of leaves, and the trees made no deeper shade in August than in winter! The white oaks enjoyed a partial exemption, but the red, black and yellow oaks were entirely stripped of leaves. When they left the trees, they infested all the buildings which were near oak woods, and I have a pretty distinct recollection that their swimming qualities were then noticed.

Mr. Kelley's description does not exactly apply to these; they were mostly black, with a stripe of yellow on each side of the back, and crawled rapidly with many legs. The cart ruts, in a sandy road leading through my father's woodland, gath-

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ered them in myriads; and the crushing them as we carted hay through the woods, is distinctly recollected.

They disappeared about the third or fourth year, more suddenly than they came. The trees mostly survived, with many dead limbs. The shrub oak was entirely stripped of leaves. I write from distinct and rather bitter recollection of what was then considered a great calamity, which excited much attention and many fears. Being but a boy, my observations extend only over the immediate neighborhood, in the west part of Georgetown; and this is written in the hope that from some old almanac, newspaper or diary, a better account may be brought out.

About 1620, I discovered at the road-side, in Groveland, a small tree bent down with the weight of some hundreds of the genuine article. I destroyed every one; and whether in so doing I prevented a repetition of the former visitation, will never be known.

The canker-worm of the orchard sometimes infests the elm, but they have been much damaged in this vicinity.

The blast which a few years ago invaded the plane tree or button-wood, has not, I believe, been satisfactorily explained. The tree remained perfectly healthy, and the damage occurred to the new growth as it put forth its tender leaves each year, leaving an unsightly knot where it attempted to produce its broad leaves. I examined many of these knots, but could never detect the living worm, though I was satisfied that the whole mischief was then and there, and perpetuated by a minute worm or insect, whose presence and operations it was difficult to detect or prevent. Its work seems to have ceased in this vicinity.

JEREMIAH SPOFFORD,

Of the Committee.

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GRAIN CROPS.

The Committtee on Grain Crops award the following gratuities :—

To Hanson Ordway of West Newbury, for his crop of corn, $10 00

To Francis Little of Newbury, for his crop of wheat, 8 00

PAUL TITCOMB,
FRANCIS DODGE, } Committee.

STATEMENT OF HANSON ORDWAY.

The crop of corn on one acre of land, which I have presented for premium, is not yet entirely harvested. I have therefore gathered the corn on two rods, the same being a fair average of the whole, the weight of which was ninety-nine and one-half pounds. The land was in onions last year, manured with six and one-half cords barn-yard manure. The present year, three cords manure was applied broadcast, and ploughed in. The corn was planted on the tenth and eleventh of May, and manured in the hill, with two cords old manure thoroughly pulverized. The corn planted is called the Dole corn. The land is a light loam, with gravelly subsoil.

The cost of cultivation and harvesting I estimate as follows :—

To drawing and spreading manure,	$2 00
Ploughing and harrowing,	2 00
Planting,	3 00
Seed,	50
Hoeing and cultivating (three times),	7 00
Harvesting,	7 00

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Manure,	20 00
Interest on land,	6 00
Total,	$47 50

West Newbury, Nov. 6, 1861.

STATEMENT OF FRANCIS LITTLE.

The crop of Wheat which I enter for premium was grown upon land that lies at the foot of the westerly slope of Merrimac ridge, so called, in Newbury, and contains one acre and ten rods. The soil is a strong dark loam, resting upon a bed of clay; though over a large part of it, there is an intervening layer of yellow loam. It has been under ploughed cultivation for the past twelve or fifteen years—for the major part of the time with onions; but owing to the failure of that crop for three or four years previous to 1860, it has been occupied with mixed crops of corn, potatoes, carrots, and some onions.

In 1860 it was planted with Indian corn, and dressed with about eight cords of common barn-yard manure applied broadcast to the acre. The crop might be considered good, although it did not get thoroughly ripe.

The present year, the ground was ploughed and harrowed early in May, and upon the 4th of that month I sowed two bushels of bald wheat. This was harrowed in. I then sowed grass seed, and carefully rolled the whole with a common wooden roller. No dressing was applied.

The crop was cradled Aug. 9th and 10th, and was threshed the first week in September. It laid in the chaff about a week, and was then winnowed; and after standing in flour barrels for a week or ten days more, was measured. The whole product was thirty-seven bushels and six quarts, weighing 65 lbs. to the bushel.

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I enclose a statement of the cost of the crop, and its present value:—

	Dr.	
To rent of land,	$10 00	
Ploughing,	3 00	
Harrowing, sowing and rolling,	2 00	
Seed,	2 50	
Cradling,	1 50	
Binding, and carting to barn,	1 50	
Threshing with machine,	5 00	
Winnowing,	1 00	
		$26 50
	Cr.	
By 35 bushels wheat at $1 25,	$43 75	
2 tons straw,	14 00	
		$57 75
Cost of crop,		26 50
Profit,		$31 25

Newbury, Nov. 11, 1861.

TREADWELL FARM.

The Committee on the Treadwell Farm would respectfully report:—

That the present condition of the Farm, under the management of Mr. Brown, is very much in advance of that exhibited by it at any time since it came into the possession of the

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Society. This is what might reasonably be expected, as much of the labor and cultivation heretofore bestowed upon it by him, would not show their results till after the lapse of some years. The experiments that are now in progress upon the Farm, are likely to be far more satisfactory than those heretofore tried by the Society; and it is to be hoped that in this way the Farm will prove to be in fact, as it was designed by its donor to be, a farm "for the promotion of the science of agriculture, by the performance of experiments and such other means as may tend to the advancement of said science."

But it is manifest, in order to carry out this object successfully, and to make the Farm worthy of the reputation of the Society to whom it was bequeathed, a suitable barn is greatly needed, instead of the ill-contrived and diplapidated one now upon the premises. Three years ago, when the Society made the agreement for the occupancy of the Farm by Mr. Brown, it was so well convinced of the need of the Society in this respect, that the following vote was passed at its annual meeting:—

Voted, That the Committee on the Treadwell Farm be authorized to construct a new barn on the premises, provided no draft be made on the permanent funds of the Society for that purpose.

With this view, the Committee received subscriptions at the time to the amount of $200; but as they saw no prospect of raising, from this source alone, the necessary funds, they did not feel authorized to proceed to build. Recently, however, Mr. Brown, the occupant of the Farm, deeming it to be for his interest also to have a new barn, has offered to make and stone the cellar for the same, thereby relieving the Society from a portion of the expense of building. By estimates of different parties, the cost of a barn 70 feet by 40 feet, and 18 feet posts, above the cellar, will not exceed $1200, or, at most, $1300.

In the available means for this outlay, the Committee do not feel at liberty to include the above-named subscriptions for

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$200, as the parties making the same, owing to the lapse of time and the change of the times, may not feel bound to pay them, though the Committee cannot speak definitely on this subject. The fund that has accumulated from unclaimed premiums, and which heretofore has been applied to the increase of the Library, now amounts to $622 50. The net proceeds from the sale of the oak timber cut on the farm last year, amounts to $405 25, making together a total of $1027 75 available for the purpose of building a barn on the farm. The Committee would propose, therefore—to make up the required amount—the following vote:—

Voted, That the Committee on the Treadwell Farm be authorized to draw on the permanent funds of the Society, in addition to the fund arising from unclaimed premiums and from the sale of oak trees, hereby appropriated to the erection of a new barn on the farm, an amount not exceeding $300 for the same purpose, to be refunded from the amounts next accrueing from unclaimed premiums.

In accordance with the above vote, which was passed by the Society, at its last annual meeting, the Committee have chosen a Building Committee, consisting of George B. Loring, C. P. Preston and R. A. Merriam, who have been empowered to construct a barn, not exceeding in cost the sum of twelve hundred dollars. The site has been selected, and the contracts will be made immediately.

The following report of the experiments on the Farm is furnished by Mr. Brown, the tenant:—

Report of the Experiment on the Application of Manures on the "Treadwell Farm," the year of 1861, competing for the premiums as offered by the Massachusetts Society for the Promotion of Agriculture, and also by the Essex Agricultural Society:

Land selected, level.

Amount of land, 2½ acres.

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Quality of land, light, dry, not retentive of manures.

Crop of 1860, grass.

No manure in 1860.

Kind of manure used 1861, stable manure which had been thrown into the hog-yard from day to day.

Amount, 20 cords.

Depth of Ploughing, 8 inches.

5 cords applied to Lot No. 1, and ploughed 8 inches deep the whole field.

5 cords applied to Lot. No. 2, and the whole field cross-ploughed 4 inches deep.

5 cords applied to Lot No. 3, and the whole field harrowed twice.

5 cords applied to Lot No. 4, and left exposed on the surface.

Lot No. 5, no manure.

May 13th, 1861, the whole piece was planted with corn known as the "Flint Corn," the hills 3½ feet apart each way.

June 10th, cultivated the whole field, both ways, and commenced hoeing, and hoed the whole field, keeping the land level.

June 17, cultivated the whole field, both ways.

June 25, cultivated the whole field, both ways.

June 25, 26 and 29, cleared out every weed to be found.

July 2, cultivated the whole field both ways.

July 8, cultivated the whole field both ways.

Aug. 13, 14 and 15, sowed winter rye and grain seed, as per order, and hoed over the entire field.

Corn harvested Oct. 16th to 20th, 1861.

Amount of	corn	on	Lot No.	1,	56½ bu. ears.
"	"	"		2,	50 "
"	"	"		3,	43 "
"	"	"		4,	37½ "
"	"	"		5,	15 "

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Weight of Corn Stover on	Lot No.	1,	2950 lbs.
"	"	2,	2270 "
"	"	3,	1330 "
"	"	4,	1270 "
"	"	5,	500 "

WEATHER REPORT OF 1861.

AMOUNT OF RAIN.

	First Third.	*Second Third.*	*Last Third.*
MAY.....	0,952 in.		1,106 in.
JUNE.....	2,255 in.		
JULY.....	0,394 in.	1,247 in.	0,544 in.
AUGUST.....	1,564 in.	2,210 in.	0,554 in.
SEPTEMBER.		1,564 in.	

EXPERIMENT OF 1860 CONTINUED.

Land ploughed 6 inches deep.

April 29, 1861, Barley sown, 5 bu.
Grass seed, red top, 3 bu.
Clover seed, 15 lbs.

Well harrowed and rolled.

July 29th, harvested.

Lot No.	1	weighed, Barley and Straw together,		730 lbs.
"	2	"	"	970 lbs.
"	3	"	"	970 lbs.
"	4	"	"	1060 lbs.
"	5	"	"	660 lbs.

Amount of Barley—Lot No.	1,		2¾ bu.
"	"	2,	6¼ bu.
"	"	3,	6½ bu.
"	"	4,	5 bu.
"	"	5,	3¾ bu.

The other hoed crops of the Farm for 1861 were—of Corn, 450 bu. ears; Potatoes, 400 bu.

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Apples, 4 bbls.; Cranberries, 20 bu.; Meadow Hay, 25 tons; Upland Hay, 8 tons.

Sixty-two rods of stone under-drains have been put in the present season.

The Committee are gratified in being able to report the improving condition of the Farm, and to express the belief that it will, when the proposed improvements are completed, become, as a source of practical knowledge, all that the liberal donor anticipated.

ALLEN W. DODGE,
DANIEL ADAMS,
R. S. FAY,
JOHN W. PROCTOR,
GEO. B. LORING,
R. S. ROGERS,
JOSEPH HOW,
R. A. MERRIAM,
JOHN WHITTREDGE,
CHAS. P. PRESTON,
WM. R. PUTNAM,
} COMMITTEE.

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REPORT OF THE COMMITTEE UPON LOCATING THE GROUNDS FOR THE ANNUAL EXHIBITION OF THE ESSEX AGRICULTURAL SOCIETY.

The Committee to whom was referred the following vote of the Society—"That the Trustees consider the expediency of holding the annual fairs permanently on the Society's farm in Topsfield, and report to the next meeting of the Society the reasons for or against such a measure"—would respectfully report:—

They have endeavored to obtain all the information within their reach, with regard to the success of the permanent and itinerant modes of holding Agricultural Exhibitions, and have given the subject their most careful consideration. They consider that the very existence of the Essex Society depends upon the decision of its members on this question. And, on this account, while they have examined the matter in all its bearings, they have felt that they could not discharge their duty without arriving at some positive opinion; an opinion which they trust will meet the approbation of the Society.

They find that the question has been largely discussed in various agricultural regions, for the purpose of ascertaining, if possible, the most advantageous method of conducting Exhibitions. Most of the Agricultural Societies of the United States, Canada, Great Britain and Continental Europe, have examined the subject, and have decided against a permanent location—some have abandoned the system after careful experiment.

It is evident that the expense attending a permanent location, in the construction of buildings and the arrangement of

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grounds, must be large. It is known to be so large as to have impoverished some societies, and deeply involved others. The financial condition of the Essex Society is now, and has for a long time been good. Its funds enable it to be liberal in its premiums, without absolute dependence upon the fees of visitors or private benefaction. In this respect it differs very essentially from many neighboring societies, whose location is a source of conflict and rivalry, and whose debts are a constant annoyance. And it seems desirable that it should in no way lose the advantages it has so long enjoyed, for the sake of a doubtful experiment.

The size and shape of our County, moreover, would render the selection of a permanent location, combining convenience and publicity, very difficult. We have five large centers of population, with their surrounding farming interests, viz:— Lawrence, Haverhill, Newburyport, Salem and Lynn. It would be impossible to select a location near one of these large places, without dissatisfying others, and without creating almost a necessity for an increase of societies in the county. Whereas, under our present plan, every part of our county is accommodated, and the spirit of every section is stimulated to make our fairs successful.

The conveniences which we now enjoy are ample. There has been no difficulty in obtaining halls and rooms for our exhibitions—none in securing grounds for experiments in ploughing, draft, driving, &c.—and none in finding good accommodation for our addresses. In all these respects we have been very fortunate; and nowhere have we seen pens so well filled as our own, nowhere halls more crowded, nowhere any place for the address half so good as the village church, and nowhere audiences so large and attentive.

It is important that our Society should prosper. It is important that all our farmers should be accommodated. It is important that the public interest of each portion of our county, in our exhibitions, should be kept alive. And so far

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from recommending the permanent location of our Fairs, your Committee would propose the following resolution :—

Resolved—That the Trustees of the Essex Agricultural Society are hereby requested to consider the interests and wants of each and every section of the County in locating the annual Exhibitions of the Society; and that this policy lies at the foundation of the prosperity and success which have thus far attended its operations.

Respectfully submitted.

GEORGE B. LORING,
DANIEL ADAMS,
JOHN KEELY,
} COMMITTEE.

[This Report was accepted and adopted by the Society, by a unanimous vote.]

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Abstract of U. S. Census Returns for the County of Essex, of Products of Agriculture, (principal crops only,) and the Live Stock employed therein.

Towns.	No. of Farms.....	Acres improved...	Acres unimproved.	Cash value of farm.	Horses.....	Milch Cows.....	Working Oxen...	Other Cattle.....	Sheep.....	Swine.....	Value of live stock.	Wheat, bushels of.	Rye, do.....	Indian Corn, do...	Oats, do.....
Amesbury	118	5426½	742½	129,530	105	311	152	196	171	205	26,595	74	394	7093	1242
Andover.....	166	7231	4719	658,030	189	613	188	248	7	264	45,131	206	1156	9256	3155
Beverly	92	4043	402	458,780	120	382	84	135	13	227	29,503	25	625	5698	278
Boxford.....	93	6073	3423	409,880	111	396	186	195	189	161	32,148	69	229	5732	3104
Bradford	79	3133	778	268,400	92	277	84	112	5	142	23,580	19	424	5173	3353
Danvers.....	98	5724	742	511,400	148	531	93	109	39	364	38,992	32	197	11096	885
Essex.....	51	3543	942	186,835	54	235	120	33	8	106	17,625	00	77	3680	00
Georgetown.....	72	2943	1198	218,480	86	208	88	92	42	102	19,676	32	181	3267	552
Gloucester.....	49	3940	1024	218,849	54	224	98	65	00	101	18,936	30	121	2600	60
Groveland	64	2144	756	148,700	58	162	52	67	35	56	12,435	34	113	2956	990
Hamilton.....	85	6469	959	299,755	112	343	145	238	28	224	28,047	14	541	4509	701
Haverhill.....	208	9065¾	1837	715,600	251	597	196	323	200	402	56,700	318	1133	12037	6565
Ipswich	173	10887	2304	461,545	203	639	272	275	79	329	53,263	18	1180	9463	564
Lawrence.....															
Lynn	35	518	1392	151,700	57	114	18	32	101	73	12,230	00	224	1507	235
Lynnfield.....	39	1973	1099	161,200	48	80	44	63	18	67	17,960	00	169	2565	725
Manchester	26	777	470	103,800	22	56	38	29	00	62	7,045	15	120	687	3

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Marblehead.....	59	1932½	65	191,850	110	186	32	50	22	87	20,440	00	73	340	40
Methuen.....	127	3601	6624	472,350	156	597	158	229	11	357	37,133	169	703	7862	5263
Middleton.....	67	4287	915	180,550	67	221	70	59	3	134	14,592	00	158	2050	255
Nahant.....	2	62	90	27,000	8	10	8	8	00	8	1,728	00	00	275	00
Newbury.....	132	9450	1008	547,020	160	636	256	398	74	161	47,707	111	678	8121	220
Newburyport.....	57	2749½	500	238,400	70	289	54	35	1	94	19,725	80	260	10110	355
North Andover.....	106	6543	4154	541,400	138	283	192	107	101	169	42,127	318	339	6918	4501
Rockport.....	26	974	327	100,000	28	63	57	20	3	48	8,685	6	198	631	00
Rowley.....	120	5517	1124	282,775	111	365	128	161	56	196	26,016	68	416	4597	353
Salem.....	17	450	12	146,300	22	152	18	12	3	274	14,830	00	100	820	186
Salisbury.....	96	4909	292	253,850	84	264	190	177	101	155	27,597	167	470	4904	916
Saugus.....	39	705	1864	155,650	52	173	26	36	16	73	12,420	00	365	2157	00
South Danvers.....	114	5034	1473	713,300	165	453	98	177	97	394	53,165	87	780	9530	1485
Swampscott.....	22	697	201	171,660	44	61	10	8	00	38	9,750	00	203	320	00
Topsfield.....	83	6177	396	292,975	102	354	136	106	70	292	29,164	23	210	3336	663
Wenham.....	49	2922	484	172,400	65	170	62	97	36	145	13,786	00	401	2847	135
West Newbury.....	135	6045	759	516,600	152	583	225	280	314	208	48,014	144	473	9658	2198
Total.....	2699	134,945 1-4	43,075 1-2	10,106,624	3244	10,028	3578	4172	1843	5718	866,740	2059	13,211	161,795	38,982

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ESSAYS.

The Committee have had under consideration an Essay on the Importance of Birds to the Success of Farming Operations, and if we had not previously believed the same doctrine, we should be converted on reading this essay.

The shooting of birds, for taking some of their natural food from trees upon which we have bestowed a little cultivation, of which claim the innocent bird has had no previous notice, is a crime of which the conscience of the writer does not accuse him; and he takes this opportunity to make a public acknowledgment of the sin of once having killed a bird, in the woods, doing no harm to any one, with a stone thrown in mere wantonness. Gladly would he have restored the poor struggling bird to life,—that was impossible; and our only consolation is, that the offense has never been repeated; but the essay speaks for itself. It will save the lives of many of the feathered tribes, and we cheerfully award the author—Wilson Flagg of Cambridge—the premium of ten dollars.

An elaborate and well written Essay upon the culture of the Cranberry, was presented for the consideration of the Committee, by Nathan Page, Jr., of Danvers,—to the writer of which the Committee have no hesitation in awarding the premium of ten dollars.

His directions for the culture appear to be minute, discriminating, and sufficient to enable any one to put his directions into practical use. Mr. Page has not told us how far he has

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tested his own directions; but the essay has intrinsic evidence that his knowledge is not merely theoretic, or derived from books, but that he understands, practically, the almost new art of cranberry culture.

With regard to the use of water in overflowing and protecting cranberry beds, we doubt whether, in practice, it will be found possible to apply to the extent which the essay seems to contemplate; and we are glad to know that some of the most prolific natural cranberry meadows are never overflowed.

The price which this fruit always bears will offer ample inducements to all who possess land in any degree suitable; and with this essay for a guide, it may be entered upon with every prospect of success.

JEREMIAH SPOFFORD, Chairman.

A PLEA FOR THE BIRDS, ON ACCOUNT OF THEIR UTILITY TO AGRICULTURE.

BY WILSON FLAGG.

It may seem strange to some of our readers that there is a necessity, in the present enlightened age, to enter into a course of argument to prove the utility of birds to agriculture; they may be still more surprised to learn that the greatest enemies of the birds are among those classes whose occupation would be ruined, if they were for a single year wholly deprived of their services. We are accustomed to plead for the birds as beautiful and interesting objects, that deserve protection for their own sake, while we overlook their importance in the

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economy of nature. Valuable as they are for their songs, their lively motions, their gay plumage and their amusing habits, all these circumstances are of minor importance, compared with the benefits they confer upon man, as checks upon the over-multiplication of noxious insects. The fields are greener and the flowers more beautiful in the spring, the fruits of summer and autumn are fairer and more abundant, and all nature is preserved in freshness and beauty by these hosts of winged musicians who celebrate their garrulous revelries in the woods and pastures.

From a conviction that this general ignorance or imperfect appreciation of the services of birds may lead to momentous consequences, I propose to make a formal vindication of the feathered race, but shall not in any respect exaggerate their importance. I believe it admits of demonstration, that if the birds were exterminated, mankind could not subsist upon the face of the earth. Almost every species is indispensable to our agricultural prosperity. The gunner who destroys ten birds in the spring, secures the preservation of so many millions of injurious insects to ravage our crops, and to destroy the trees of our forests and our orchards. Naturalists, in general, will admit the great importance of their services; but cultivators, who of all persons in the world ought to be the most familiar with the facts that prove their usefulness, are indeed the most ignorant of them; and they are so full of prejudices against the birds, that they attribute to them a full moiety of the mischief perpetrated by insects. There is perhaps not an insect tribe in existence which is not the natural food of some species of the feathered race, and which, if not kept in check by their agency, would multiply to infinity. Calculations have been frequently made, to ascertain the probable amount of insects consumed by single birds. Many of these accounts seem almost incredible; yet they will, for the most part, admit of demonstration.

Two different methods have been adopted for the purpose of ascertaining this class of facts: first, by watching the birds and

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taking note of their actions; second, by destroying individuals at different times and seasons, and examining the contents of their alimentary organs, to ascertain the quality of their food. Mr. Bradley, an English writer, mentions a person who was led by curiosity to watch a pair of birds that had a nest of young, for one hour. They went and returned continually, bringing every time a caterpillar to their nest. He counted the journeys they made, and calculated that one brood could not consume less than five hundred caterpillars in the course of a day. The quantity consumed in thirty, at this rate, by one nest, would amount to 15,000. Suppose that every square league of territory contained one hundred nests of this species —there would be destroyed by the birds of one species alone, a million and a half (1,500,000) of caterpillars, in the course of one month for every square league of agricultural territory.

I was sitting at the window one day in May, when my sister called my attention to a Golden Robin in a black cherry tree, devouring the common hairy caterpillars; and we counted the number he consumed while he remained on the branch. The time that elapsed was one minute by the watch, and during this space he destroyed seventeen caterpillars. But it is worthy of notice, that he did not swallow the whole insect. After seizing it in his bill, he carefully set his foot upon it, tore it asunder, and swallowed a small portion taken from the inside. He then seized others in succession, and in like manner selected and devoured his favorite morsel. Had he consumed the whole caterpillar, five or six only would probably have satisfied his appetite. But this is not the general practice of birds that devour hairy caterpillars: they eat only an interior morsel, and require a proportionally greater number to satisfy their wants.

This observation led me to consider how vast an amount of benefit this single species of birds must contribute to agriculture. We will suppose that each bird spends, at different times during the day, sixty minutes, or one hour, in the aggregate, feasting upon this kind of food. This is not an ex-

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travagant calculation, since he undoubtedly employs nearly twelve hours of the twenty-four in searching for food, and we may suppose a twelfth part of this time devoted to this description of foraging. At the rate of seventeen per minute, each bird would destroy a little more than one thousand caterpillars in the course of each day. We may rationally conclude from this calculation, even if we reduce it to one half the amount, this species of birds must destroy an immense quantity of these vermin during the three or four weeks of the caterpillar season, and that they must serve as a most important check upon their multiplication.

It is recorded in "Anderson's Recreations," that a curious observer, having discovered a nest of five young jays, remarked that each of these birds, while yet very young, consumed daily at least fifteen full-sized grubs of the May-beetle, and would require many more of a smaller size. The writer makes a calculation founded on the supposition that they would require, of large and small, about twenty each for their daily supply. At this rate, the five birds together would consume 100. Allowing that each of the parents required 50, the family would consume 200 every day; and the whole would amount in three months, or one season, to 20,000. The writer, I would remark, commits an error in supposing that the old birds consume more than their young; whereas they feed upon comparatively few soft insects, or grubs, giving these to their young, while they make their own meals upon the hard and coriaceous insects. The old bird consumes, for example, the beetle, while he feeds his young upon its larva.

In obedience to a similar instinct, many of the granivorous birds, as the Sparrows and Finches, while they live chiefly upon seeds, feed their young entirely upon the larva of insects. Almost every Finch and Sparrow is, therefore, insectivorous for the first few weeks of its existence, not consuming seeds or grain, until it has learned to provide for its own subsistence. The old birds supply their young with larva, when this kind of food is abundant, and when the tender state of their digestive

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organs requires the use of soft food. Thus nature has provided that even the granivorous birds should act as checks upon the multiplication of insects, during the early stages of their existence. The exceptions to this practice are the Pigeon tribe, that soften the grain in their own crops, before they give it to their young; and the Hemp-birds, who wait until the seeds of grasses and other plants are in the milk, before they bring their young into the world, and then feed them upon the soft milky seeds.

The quantity of grubs and insects consumed by the feathered race is infinite, and beyond all calculation; and the facts related of them show that birds require a much larger proportion of food, compared with their size, than quadrupeds. My own experience corroborates the accounts which I have selected from the testimony of other observers. I took from their nest two young Blue-birds, which are only half the size of a Jay, and fed them constantly with my own hand, for the space of two weeks. These little birds would swallow twelve or more large muckworms apiece daily, when they were supplied with them, or other grubs or worms, in the same proportion, and still seemed eager for more, and not over-fed. Another experiment which I made with two young Cat-birds, was attended with results equally surprising. Their voracity convinced me that the usual calculations bearing upon this subject are not exaggerated.

The usefulness of birds has been repeatedly demonstrated by dissecting them, and examining their alimentary contents. This method of studying their feeding propensities is not attended with any liability to mistakes. When we watch a bird at a distance, we cannot be sure, in all particular instances, of the character of his prey; but if we find his crop or his gizzard full of insects of a certain species, we cannot feel a rational doubt that such insects are his natural food. And when we consider that insect food is digested with much greater rapidity than grain or seeds, we have reason to infer that each bird must fill itself with insects at least five or six times a day in

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order to supply his alimentary wants. If a hundred insects, therefore, of any kind are found at one time in the crop of a bird, upon dissection, we may believe that this number is no more than a fifth part of the quantity he consumes in the course of one day. It is worthy of remark that a very small part of any insect or grub is nutritious, the most of it consisting of its shelly coverings and hairy appendages; we ought not to be surprised, therefore, that a bird must swallow a large quantity of insects to obtain a small quantity of nourishment.

There is one circumstance connected with examinations of a bird's alimentary contents, that has often led to false inferences. It is a fact that a few kernels of corn, taken by the bird in the morning, will frequently be found in the gizzard at night, while a whole multitude of insects and grubs, swallowed at a later period of the day, are entirely digested, and have disappeared from the contents of the stomach. If a Black-bird, having swallowed a few kernels of corn in the morning, and afterwards more than a quarter of a pound of insect food, be killed by a jealous farmer at night, he would believe, upon dissecting it and finding only a few kernels of corn in its gizzard, that he had ocular proof that the bird fed almost exclusively upon corn. The insect food has digested and disappeared, while the corn remains almost unaltered; for it is remarkable that if several kinds of food are swallowed by an animal, and especially by a bird that does not masticate its food, the digestive organs will select that portion which is most needful to supply the wants of the system, or that which is most agreeable to its nature, and not until all this is digested will it act upon the remainder. By experimenting upon poultry, this fact may be clearly demonstrated.

But I will now proceed to relate a few facts, which I have selected from a variety of sources. A farmer's boy in Ohio, observing a small flock of Quails in his father's corn-field, resolved to watch their motions. They pursued a very regular course in their foraging, commencing on one side of the field, taking about five rows, and following them uniformly to the

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opposite end. Returning in the same manner over the next five rows, they continued in this course, until they had explored the greater portion of the field. The lad, being suspicious that they were pulling up the corn, fired into the flock, killing one of them, and then proceeded to examine the ground. In the whole space over which they had travelled, he found but one stalk of corn disturbed; this was nearly scratched out of the ground, but the kernel still adhered to it. In the craw of the Quail he found one cutworm, twenty-one striped vine-bugs, and one hundred chinch-bugs; but not a single kernel of corn. This is an important fact; for as the Quail is a granivorus bird during a great part of the year, it proves that the usefulness of birds, as destroyers of insects, is not confined to the insectivorous tribes.

Mr. Roberts, a farmer who resided in Colesville, Ohio, communicated an important fact to one of the papers of that State. A neighbor asked his assistance in killing some Yellow-birds which the farmers accused of destroying their wheat. Mr. Roberts declined, because he did not believe their accusations, and was inclined to cherish and protect the birds, as the farmer's friends. Out of curiosity, however, he killed one of the Yellow-birds, and opened its crop, when he found that *instead of the wheat, the bird had devoured the weevil, which is the great destroyer of wheat!* He found as many as two hundred weevils in the bird's crop, and but four grains of wheat; and as each of these contained a weevil, they were undoubtedly eaten for the sake of the insect within them. The jealousy of the Ohio farmers was prompting them, in this case, to destroy a race of birds that were constantly performing for them an incalculable service.

By Southern farmers, the Kildeer, a sort of Plover, is supposed to destroy young turnips. A writer in "The Southern Planter," alluding to this notion, pronounces the Kildeer the true guardian of the turnip-field, remarking, "I have several times dissected the gizzards of Kildeers—for they have no crops—to show their destroyers that they contain no vegetable

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substance; and nothing, indeed, but the little bug so famous for destroying young turnips and tobacco plants. These little hopping beetles are a great nuisance in the land, and seem to be rapidly increasing. The Kildeers are their natural enemies, and formerly collected in large numbers to fulfil the purposes of their mission. I seldom, now-a-days, hear the Kildeer's voice. Let no man, henceforth, kill one, except to convince himself and others that they eat no young turnips. The sacrifice of one producing such conviction may save hundreds of his brethren."

The testimony of practical gardeners in favor of birds deserves special consideration, because their prejudices incline them to seek their destruction. Mr. Musgrave, a practical gardener, who has written a treatise on the means of destroying injurious insects, remarks: "It is a too common practice among gardeners, to destroy, indiscriminately, the birds that frequent their grounds. This, in my opinion, is bad policy. Although some birds are great enemies to certain crops, it must be a trifling crop indeed that will not bear the expense of a person to watch it, or a net to protect it until it is out of danger; for the birds perform a double office—eating up the vermin from the trees, and the seeds of weeds and the eggs of insects from the ground. I have often stood and observed the male bird, while the female was sitting on the nest, fly to the spot with his bill full of caterpillars to feed his mate or young; and when the young ones became so strong as to accompany their parents in quest of food, the number of caterpillars they destroy is astonishing. I can say from my own observation, that were it not for the labors of birds in this direction, our trees would exhibit nothing but bare stumps." Mr. Musgrave one day followed a nest of young birds that had just flown, for the purpose of observing the actions of the old birds. He saw them fly from branch to branch, and peck the caterpillars from the curled leaves, carrying them immediately to their young It is his opinion, therefore, that the gardener should protect the birds as useful allies, and avail himself of their services, by

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means of which, united with his own efforts, he might rid his grounds of those insects which have hitherto been a constantly increasing pest.

In 1826, insects of various kinds had become so universally destructive, as to cause serious apprehensions for the safety of all kinds of products. One of our hoticulturists communicated his opinions on this subject to the "Massachusetts Yeoman," expressing his belief that the unusual number of these destroyers was occasioned by the destruction and diminution of those feathered tribes, which are designed by the Creator as a check upon the increase of insects and worms. His neighbors expressed their astonishment that everthing in his garden should look so thrifty and flourishing, while every plant in theirs was cut down and destroyed, almost as soon as it sprang up, by these vermin. "I have no concern about it," he replied; "my Robins see to that. I preserve them from their enemies—the boys and the cats—and they preserve my garden from insects and worms. In one corner of my garden, near my dwelling, is a tree in which a couple of these friends of man have reared their families for three successive years. There has ever been a harmony between my birds and me." This was the whole explanation of the healthfulness of the fruits and vegetables in his garden: He preserved all the birds in his garden, and they devoured the insects that infested it. Grasshoppers, he said, in the early stage of their existence, and for some weeks after their appearance, are not larger than flies; and ten or twelve birds would clear a whole field of them, before they could be large enough to do any injury; and he besought all parents, as they valued their property and the blessing of Heaven, to prevent their boys from shooting Robins and other birds.

It is well known that the small Owls are useful as destroyers of the larger moths and nocturnal insects; they are also excellent mousers. The Hon. Richard Peters, in "The Memoirs of the Philadelphia Society for Promoting Agriculture," remarks of a small species of Owl, "The numbers of mice, moles and other vermin destroyed by the Short Eared Owl are

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truly surprising. All the Owl tribe are mousers. A Pine-tree, spreading and thick-set, near my house, affords a shelter and roost to about a dozen of these Owls through the winter." He therefore enjoyed the opportunity of witnessing their operations; and a few of them, for they are generally gregarious, will soon, in his opinion, clear the barn and out-houses of a farm, as well as the fields, from vermin, in the vicinity of their resort. Farmers, he said, should encourage the small Owls to reside near their buildings, and invite their visits in every way, for it is only the larger species that will attack poultry, or commit damages of any sort.

The different habits of foraging that distinguish the several tribes and species of the feathered race, deserve attention, as indications of a corresponding difference in the character of their food. Those, for example, that seek their food chiefly from the surface of the ground, would forage in a different manner from those species that collect it from under the surface. The Swallows, that catch all their food while on the wing, give proof by this habit that they pursue only winged insects; but their habits of foraging differ very essentially from those of the Pewees, who also catch all their food while on the wing. The Robin and the Red-winged Black-bird take their food entirely from the ground; but their ways, while seeking it, are very different. Their respective habits of foraging are adapted to the successful pursuit of the worms and insects that constitute their principal food; for although each of these birds will devour the same kind of insects that come in their way, they make certain kinds, respectively, the chief objects of their pursuit. It is necessary to study all the different habits of foraging, that mark the several species, in order fully to comprehend the principle which I wish to inculcate,—*that each species of bird performs certain services in the economy of nature, which cannot be so well accomplished by any other species,*—and that it is necessary, therefore, for this end, to preserve them all in their due proportions; that is, in such proportions as would spontaneously exist, if the whole race were unmolest-

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ed, and left to their own natural chances of living and multiplying.

The *Sylvians* are among the most interesting foragers of the smaller birds, and are remarkable for their apparent diligence in hunting for insects. They have a peculiar way of examining the foliage and blossoms, rather than the surface of the branches, and their motions are, therefore, very conspicuous upon the outer surface of the trees, near the extremities of their branches. The Golden Robin hunts his food like the Sylvians, though he is not one of them, and his motions are more rapid and energetic than theirs. He arrives with the first blossoming of the Cherry trees, a coincidence which I have noticed and recorded for several years past. This beautiful bird is fond of certain insects that abound upon the leaves and blossoms of trees; and his Northerly progress is probably regulated by this supply, that comes along with the opening of spring. No sooner does he arrive than he may be seen rigorously examining the leaves and blossoms, and catching small beetles and moths which are concealed upon the under surface of the foliage, and in the cup of the flower. This bird is considered omnivorous, but I am convinced that during the months of spring and summer, his diet consists almost entirely of insects.

The Wren, the Creepers and the Tomtits seek their food by creeping round the branches, and take less of their food from the foliage than either the Sylvians or the Fly-catchers. They seldom pause in their circuitous course, proceeding usually from the junction of the branches to their extremity, then hopping to another branch, and proceeding upwards till they are satisfied and pass to another tree. The Sylvians always appear to examine the leaves and blossoms, while the Creepers and Tomtits examine more carefully the bark of the tree. Hence the Sylvians do not prolong their stay with us after the fall of the leaf, while the others are seen after the trees are entirely denuded, leading us to infer that the one feeds chiefly upon beetles and other insects which are most abundant in the summer

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months, while the others subsist upon insects in their embryo forms, which, during autumn and winter are concealed in the crevices of the bark of trees.

The habits of the Fly-catchers are quite different from those of any of the species I have just named. Let us take the Pewee for an example. He sits on the bough of a tree almost motionless, except a frequent sidling of the head, indicating his watchful condition. He does not seem to be so diligent as the Sylvians; but that he is not idle is shown by his frequent flitting out, in an irregular circuit, and immediately returning to his perch with a captured insect. These salient flights are performed as often as once in four or five seconds, and he often turns a summerset in the act of capturing his prey when it tries to elude him. He seldom misses his aim, and probably collects ten or fifteen insects every minute, of an appreciable size. As he lives entirely upon them, and is also, in the early part of summer, engaged in supplying the wants of his young, this is no extravagant estimate.

The Pewee does not catch all his food while it is on the wing, but he is always on the wing when he takes it. If he sees a moth or a beetle upon a leaf or a branch, he flies to it and seizes it while he is poised in the air. A Sylvian would stand upon the branch and extend his neck forward to take it. The Vireos, which form an intermediate genus between the true Fly-catchers and the Sylvians, partake of some of the habits of each; and some of the species are remarkable for a habit of singing while they are foraging. The warbling Vireo seems, indeed, to make singing his principal employment; he is never apparently very diligent or earnest, and often stops in the middle of a strain to seize a passing insect, and then resumes it. All the true Fly-catchers, including the King-bird, resemble the Pewee in their general habits of foraging.

Here, then, we observe several circles; the outer one occupied by the true Fly-catchers, who sit in wait for all such insects as discover themselves flitting among the foliage of the tree, or outside of it; the circle next the outside is occupied

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by the Sylvians, who search for their food by creeping about among the leaves and flowers; and the inner circle by the Creepers and Tomtits, or Chickadees, that hunt the bark and incrustations of the branches for their prey. Inside of this interior circle is the space occupied by the Woodpeckers, who live upon the larva which is concealed in the solid substance of the wood and bark, and lies beyond the reach of the Creepers and Chickadees, who cannot bore into the wood. Lastly, outside of the outer circle just described, is the space occupied by the Swallows, who take all their food while it is afloat in the atmosphere.

The Woodpeckers have a long tongue of great flexibility and a powerful beak. They have also a sagacious instinct that directs them how to discover their prey, without the exercise of their sight. They listen carefully for the scratching sounds of the grub while it is gnawing the wood, and having determined its exact location, they hammer upon the spot with their beak, seize their victim, and draw him out with their long tongue. The old birds are said to teach their young the art of hunting this larva, and nature has made them very easy learners. By the opposite arrangement of the fore and hind claws, these birds are enabled to climb a tree in all directions in search for their prey.

Woodpeckers live mostly in the forest, of which they are the natural guardians; and as the food of their choice is nearly as abundant in winter as in summer, they are not generally migratory. Hence the operations of these birds are incessant throughout the year. As their food is not anywhere very abundant, like that of some of the granivorous birds, Woodpeckers are never seen foraging in flocks. The more they scatter themselves, the better is their fare. All birds that assemble in dense flocks, except the aquatic tribes, are either entirely granivorous, like Pigeons, or partially so, like Blackbirds. Woodpeckers are indefatigable devourers of emmets, taking them not only from the surface, but also drawing them and their larva out of the crevices of timber. It is hardly

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possible to over-estimate the services performed by this tribe of birds in their ceaseless operations among the trees.

Thus far I have treated only of birds that take their food chiefly from the foliage, flowers, and branches of trees and shrubs—the natural guardians of the forest and orchard.—But there are many tribes that seldom take any thing from trees, and confine their foraging almost entirely to the surface of the ground. Such are the Pigeons, all the Gallinaceous birds, Larks, Blackbirds, Snipes and Thrushes. These are the guardians of the soil; and may also be made to assume an arrangement analogous to the circles above described. For example, the Snipe, the Woodcock, the Plover, and their allied species, feed chiefly upon worms and insects that live underneath the surface, digging under it for their prey with their long bills. They occupy a position analogous to that of the Woodpeckers. Larks, Quails, Thrushes and Blackbirds gather the principal part of their food from the surface, seizing only upon those underneath it, which are partly exposed to sight.

The Thrushes forage mostly upon the surface of the ground. Though they do not refuse an insect or a grub discovered upon a leaf or a branch of a tree, they hunt their food upon the bare soil or the green sward. One circumstance that attracts frequent attention in the feeding habits of the Thrushes, is their apparent want of diligence; but this appearance is delusive, for the immense quantity of insects consumed by them could not be obtained without proportional industry. The common Robin will exemplify the general habit of the Thrushes, though he carries their peculiarities to an extreme. When he hunts his food, he is usually seen hopping listlessly about the field. Sometimes a dozen Robins, or more, may be seen in one field, but they are always widely separated. Observe one of them, and you will see him standing still with his bill inclined upwards, and looking about him with seeming unconcern.—Soon he makes two or three hops, and then stands a few more seconds apparently idle. Presently he may be seen pecking vigorously upon the ground, when, if you was near enough to

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see it distinctly, you would find that he is pulling out a cutworm from his retreat, or devouring a nest of insects which are gathered in a cluster. The Robin consumes earthworms also when he cannot obtain grubs, which he always prefers.

Blackbirds, though they also gather their food from the ground, seem to be more industrious. These birds walk; they do not hop like the Robin, and they seldom hold up their heads, but march along with their bills turned downward, as if entirely devoted to the object of their search. They never seem to be idle, except when a flock of them are making a garrulous noise upon the trees. If a blackbird looks upward, it is only by a sudden movement, and he never stops. After watching him and the Robin five minutes in the same field any one would lay a wager that the Blackbird would collect twice as much food as the Robin in that time. But this would be a mistake; and the difference in their apparent industry proceeds from the different character of their food. The Robin is entirely insectivorous, and rejects all seeds and farinaceous food, while the omnivorous Blackbird hunts the soil for every thing that is nutritious, and pecks up millions of small seeds which require a close examination of the ground.

The Robin is probably endowed with a greater reach of sight than the Blackbird; and, while hopping about with his head erect, his eyes comprehend within their visual grasp, a very wide circumference. He not only watches for a sight of his prey but also for those marks upon vegetation that denote the place of its concealment. When we look among our young cabbages, that, if we see a plant cut down, we may draw out from its hole the cutworm that has done the mischief; if we do not find it, we may be sure that the Robin, who understands the indications as well as any gardener, has been there before us. The Robin must possess an extraordinary portion of this sagacious instinct, for the thousands of cutworms destroyed by him could not possibly be discovered, except by these indications. The far sightedness of the Robin is equally remarka-

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ble in the Blackbird, who, though he takes a large portion of his food from the ground, always discovers it while perched upon a tree or a fenee, and darts down upon it from his perch. It is evident that birds of certain species must be endowed with a much greater power of sight than quadrupeds, to enable them to discern their prey from distant standpoints.

The foraging habits of the different species of domestic poultry are worthy of remark, and may seem to illustrate some of the differences observed in the habits of the wild-birds. Place a brood of Ducks in a field, in grasshopper time, and they will all pursue one course, marching in a body over the field, with great uniformity. A brood of chickens, on the contrary, will scatter in all directions, occasionally reassembling, but never keeping close together, nor following any definite line of march, except when they are led by the mother hen. Turkeys scatter themselves less than chickens, but do not equal ducks in the regularity of their movements. Pigeons settle down upon a field in a compact flock and immediately radiate in all directions. Geese do not separate widely from each other, but they preserve no line of march like Ducks, because they are not in pursuit of insects, but feed upon grass and keep together after the manner of a flock of sheep.

Of all birds the most interesting foragers are those that seek their food in compact assemblages. This habit it is that renders the Snow Bunting so attractive. Their food is not distributed in separate morsels, like the food of Robins or of Woodpeckers; but consists chiefly of the seeds of grasses and composite plants, which are scattered somewhat evenly and profusely over a wide surface. When, therefore, they settle down upon a field in a flock of a hundred or more, each individual fares as well as if he were entirely alone. But we may be justified in drawing this inference from the foraging habits of birds, that as a general rule, the gregarious birds are not so useful to agriculture as the solitary feeders or those that feed in straggling flocks. Insect feeders, for the most part, find it profitable to scatter and keep separate, because their food is

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sparsely distributed. This is not true, however, of the birds that frequent the salt marshes, where their food is widely and evenly spread like seeds in a grassfield. Hence Plovers, Sandpipers and their allied species forage in flocks, like the granivorous birds, though they feed exclusively upon an animal diet.

I haye said uothing of the foraging habits of the Swallow tribe, for these are very well known and understood. The swallows are the guardians of the atmosphere, which would otherwise swarm with fatal quantities of minute insects; the Woodpeckers are the guardians of the timber of the forest, and the Sylvians and Flycatchers of the foliage. Blackbirds, Plovers, Larks and Thrushes are the natural guardians of the soil and of the creeping herbage. Each tribe has its respective duty to perform in the economy of nature; and man must beware how he disturbs her equilibrium, by reducing the numbers of any species below the amount of supplies which the insect world affords them.

It is curious to notice the assiduity with which insects are hunted in all the various stages of their existence. In their larva state, those that lurk under the soil are hunted by Blackbirds, by Thrushes and by the Common Robins, who easily detect their hiding places by the appearance of vegetation. Those infesting the wood and bark of trees are hunted by Woodpeckers who are no less sagacious in discovering the retreat of their prey and dislodging it. When the larva has assumed the form of Moths, Beetles and other perfect insects, these are attacked by Blue-Birds, Wrens, Flycatchers and hosts of other birds, who watch for them in all situations, in the daytime: and in the night by Whippoorwills, Nighthawks and the little owls. It matters not in what stage of its existence the insect is destroyed; but it is demonstrable that the insect tribes cannot be kept in check, unless they are attacked in all the stages of their being; and birds are their only effectual destroyers. Man cannot by direct means cause their destruction, except in particular locations. He cannot be a general destroyer; and their

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general over multiplication can be checked only by Nature's own agents which she has appointed for this end.

Before I conclude this branch of my subject, I wish to say a word in behalf of one of our most useful birds. I allude to the little Spotted Tattler or Peetweet, a species of Plover that breeds annually in our fields, and would multiply and become very numerous if the species were protected. These little birds are so mercilessly hunted by gunners of all ages, that they have become extremely shy and have lost all confidence in man.—Yet if they were harbored and protected from annoyance and danger, they would be tame and confiding, and our fields and gardens wonld be full of them. They are the most indefatigable hunters of insects, in pastures and tilled lands, and they lead their young after them as hens do. A few pairs, with their young broods would perform incalculable service on every farm; and if encouraged and protected they would soon reward us with their confidence and their services. These little birds are incapable of doing any mischief; they steal no fruit; do not bite off the tops of tender herbs; they are interesting in their ways, and the only cause of their scarcity is the shameful destruction of them by wanton gunners.

The consequences which have followed the destruction of birds, as related in many well authenticated instances, afford one of the most convincing proofs of their utility. Prof. Jencks mentions a case communicated by one of his female correspondents, which is worthy of record. In former times, as she had been told by her father, an annual shooting match took place on Election day in May. On one of these occasions, about the year 1820, in North Bridgewater, the birds were killed in such quantities, that cartloads of them were sold to the farmers for fertilizing the soil. There was consequently a great scarcity of birds in all that vicinity. Soon the herbage begun to show signs of injury. Tufts of withered grass appeared, and spread out widely into circles, of a seared and burnt complexion.—Though the cause and effect were so near each other, they were not logically put together by the inhabitants at that time.—

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Modern entomology, however, would have explained to them the cause of this phenomenon, in the increase of the larva of injurious insects, usually kept in check by the birds which had been destroyed at the shooting match.

After the abolition of the Game Laws in France, at the close of the last century, the people being used to regard birds as the property of great land owners, instead of the free denizens of nature, destroyed them without any limits. Every species of game, including even the common singing birds, was threatened with extermination. It was found necessary, therefore, to protect them by laws that forbade hunting at certain seasons. It is only by such unfortunate experience that men can learn that if they eat the birds, the birds cannot protect them from famine. The most serious evils were produced; the farmers' crops were destroyed by insects, and the gardens and orchards produced no fruit. Investigations of the course of these evils, by ingenious naturalists, proved them to be the direct consequence of the extermination of birds.

Some years ago in Virginia and Carolina, several tracts of forest were attacked by a malady which caused the trees to perish over hundreds of acres. A traveller passing through that region, inquired of a countryman, if he knew the cause of this devastation. He replied that the whole mischief was done by Woodpeckers; and though the inhabitants had killed great numbers of them, there still remained enough to bore into the trees and destroy them. The traveller, not satisfied with this account, made some investigations, and being an entomologist, he soon convinced them that the cause of the mischief was the larva of a species of the Buprestis, which had multiplied beyond all bounds. This larva was the favorite food of the Woodpeckers, which had congregated lately in that region, on account of the abundant supply. He proved to them that they were ignorantly engaged in protecting the real destroyers of the forest, by warring against the Woodpeckers, which, if left unmolested, would nearly eradicate this pest. Birds became ac-

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customed to certain locations; and if, by any accident, a certain region happens to be deserted by them for a season, insects of all kinds gain a start and destroy vegetation.

"In the year 1798, the forests in Saxony and Brundenburg were attacked with a general mortality. The greater part of the trees, especially the Firs and the different kinds of Pine, whose bitter and aromatic branches are rarely the prey of insects, died, as if struck at the roots by some secret malady. It was not here, as often happens, that the foliage above was devoured by caterpillars, the trees perished without showing any signs of external disease. This calamity became so general, that the Regency of Saxony sent naturalists and skilful foresters to find out the cause. They soon found it in the multiplication of one of the Lepidoptera insects, which in its larva state, insinuated itself within the tree, and fed upon the wood. Whenever any bough of the Fir or the Pine was broken, this detestable insect was found within it, which had often hollowed it out even to the bark. From the report of the naturalists it was made apparent, *that the extraordinary increase of this insect was owing to the entire disappearance of several species of Woodpecker and Titmouse*, which had not for some years been seen in the forest."

Dr. Lettsom, an English physician, remarks that he was assured by an intelligent farmer, that, notwithstanding the power of severe frost to kill insects, they are always most numerous after a cold winter, because the birds are prevented from finding them by the hardness of the soil. When a hard frost binds the surface of the ground it protects the dormant insects from the birds no less than it exposes the insects to injury from the cold. It would seem, therefore, that Nature, while providing checks to the over-multiplication of insects, has carefully guarded them from extermination, by taking care that when they are more than usually exposed to one agent of their destruction, they shall at the same time be less exposed to another.

Buffon relates the following anecdote of a certain species of Grackle, resembling our Crowblackbird, which is so injudic-

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iously destroyed by the farmers in the vicinity of Boston: "The Isle of Bourbon, where the Grackle was unknown, was overrun with Locusts, which had been accidentally introduced from Madagascar; the eggs having been imported in the soil with some plants which were brought from that island. The Governor General and the Intendant deliberated seriously on the means of extirpating these noxious insects, and for this purpose caused several pairs of the Indian Grackle to be introduced into the island. This plan promised to succeed; but unfortunately, some of the colonists seeing the birds eagerly thrust their bills into the earth of the newly sowed fields, imagined that they were in quest of grain, and reported that the birds, instead of proving beneficial, would be highly detrimental to the country.

"On the part of the birds it was argued, that they raked in new-ploughed grounds, not for the sake of the grain, but for the insects, and were, therefore, beneficial. They were, however, proscribed by the council; and in the space of two hours after the sentence was pronounced against them, not a Grackle was found in the island. This prompt execution was followed by a speedy repentance. The Locusts gained the ascendancy, and the people who only viewed the present, regretted the loss of the Grackles. In a few years afterwards, a few pairs were again introduced; their preservation and breeding were made a State affair; the laws held out protection to them, and the physicians, on their part, declared their flesh to be unwholesome. The Grackles accordingly multiplied, and the locusts were destroyed."

Kalm remarks, in his "Travels in America," that after a great destruction made among the Purple Grackles and Crow Black-birds, for the legal reward of three pence per dozen, the Northern States, in 1749, experienced a complete loss of the grass and grain crops, from the devastation of insects and their larva. The Crows of North America were likewise, some years since, in consequence of premiums offered for their destruction, so nearly exterminated, that the increase of insects

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became alarmingly great; and the states were obliged to offer counter-rewards for the protection of Crows. The same incident has frequently happened in other countries.

The protection afforded in Europe to Rooks, a species allied to our common Crow, and resembling it exactly in its habits of feeding, may be quoted as a lesson to Americans, who consider the Crow as only a mischievous marauder. The Rook feeds upon corn and all kinds of grain, but he is protected, on account of his services as a consumer of insects in all their forms. Rooks are often seen in such numbers upon newly ploughed land in England, as to blacken it with their plumage. Yet the laborers in the field do not molest them, though they must be watched to prevent their doing mischief by destroying green corn. In spite of all this, they are reckoned among the farmer's friends, and are exempted from molestation. Crows do the same kind of mischief, and they are also equally serviceable to agriculture; but they are destroyed without mercy. John Randolph was so well satisfied of their utility that he would not allow a Crow to be shot upon his farm; and to prevent their depredations, he fed them liberally at such times as his young corn was likely to be injured by them.

"On account of the propensity of Rooks to consume grain and other seeds," Mr. Selby remarks, "they have erroneously been viewed in the light of an enemy by most husbandmen, and in several districts in England, attempts have formerly been made, either to banish them, or to extirpate the breed. But whenever this measure has been carried into effect, the most serious injury to corn and other crops has invariably followed, from the unchecked devastations of the grub and the caterpillar."

An intelligent observer in Virginia, calling himself an aged man, communicated some important information to "The Southern Planter" in 1860, respecting the services of birds. He remarks that since his boyhood, there has been a rapid decrease in the number of birds, and a proportional increase of insects. Among the consequences of this multiplication, he

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mentions destructive depredations upon the farmer's crops, by clover-worms, wire-worms, cut-worms, and on the wheat crops particularly by chinch-bugs, Hessian flies, joint-worms and other pests. He thinks it demonstrable that the excessive multiplication of these injurious insects is due to the scarcity of birds. He speaks particularly of the diminution of Woodpeckers as a public calamity. He has known a community of Red-headed Woodpecker to actually arrest the progress of destruction from borers in a Pine forest. He mentions the large spotted Woodpecker, called in New England the Flicker, as the only bird he ever saw pulling out worms from the roots of peach trees. Such a habit must cause the destruction of millions of orchard borers, which are mostly found near the roots of trees.

The Abbe St. Pierre remarks, "There are insects, noxious in their nature, that prey upon our fruits and our corn. But if snails, May-bugs, caterpillars and locusts ravage our plains, it is because we destroy the birds of our groves that live upon them; and because when importing the trees of foreign countries into our own, we import at the same time the eggs of the insects which they harbor, while the birds of the same climate —the destroyers of those insects—are left behind. Every country has birds peculiar to itself for the preservation of its plants. I have seen at the Cape of Good Hope, a species called the Gardener's Bird, incessantly employed in destroying the worms and caterpillars, which, as he caught them, he stuck on the thorny prickles of the bushes. I have likewise seen in the Isle of France, a species of Starling, called the Martin, that comes from India, and lives on locusts and other insects that infest cattle. Naturalise these birds in Europe, and no scientific discovery ever made would prove so beneficial to man. But the birds of our own groves would perhaps be sufficient of themselves to clear our plains of these inconveniences, were the bird-catchers forbidden to entrap them.

"A fancy, some years ago, prevailed in Prussia, of proscribing the race of Sparrows, as inimical to agriculture. Every

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peasant was subjected to an annual capitation of twelve heads of this species of bird, which were employed in the manufacture of saltpetre; for in that country nothing is wasted. At the end, however, of the second year, it was discovered that the crops were devoured by insects, and it was speedily found advisable to invite the sparrows from the neighboring countries to re-people the kingdom with them, and remedy the evil. These birds, it is true, when insects fail them, eat some grains of wheat. But insects, be it remembered, consume it by bushels, and even by granaries. Meanwhile, if the whole race of insects could be destroyed, it would not be expedient to attempt it, since there would be destroyed along with them most of the feathered tribes of our plains, which, during the season of breeding, have no other food for their young."

The inhabitants of a new country, like our own, are not so well informed of the evils that follow the destruction of birds, as those of old countries who have learned by tradition the indispensable character of their services. Vincent Kallor, as an expedient method of setting a limit to the excessive increase of the Cockchafer, to spare the birds that feed upon the larva of this insect. Among these, he thinks the Crow undoubtedly claims the first place. "These birds (he says) follow the plough, for the express purpose of consuming worms, the larva of insects, and particularly that of the Cockchafer, when thrown out on the surface by the plough. The instinct of the Crow to go in quest of this grub, may also be observed in gardens and other places where vegetables are planted. He walks about between the plants, and when he sees one that has begun to wither, digs with his sharp bill deep into the ground, near the plant, and knows so well how to sieze his prey, that he draws it forth and swallows it almost at the same moment. The Crows do the same in the meadows which we see sometimes completely covered with them."

The American Crow, though addicted to the same habits, is made shy and timid by the persecution he suffers; for our farmers can never believe the Crow is seeking after anything

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but corn, of which, it has been well ascertained, he will eat but a very small quantity, though it were placed constantly before him. The same results might be obtained, however, by encouraging other birds that seek this grub as their favorite food. Such are the common Crow Black-bird or Purple Grackle, one of the most useful of the farmer's friends, the Red-winged Blackbird and the Meadow Lark. The Robin takes vast quantities of cut-worms that do not lie so deep in the soil, but he does not dig into the earth like the birds just named. The most useful birds are those which are likewise the most mischievous on certain occasions, the Blackbirds by stealing corn and the Robin by stealing cherries. One of our most useful birds, among the smaller species, is the Wax-wing, which, on account of his ceaseless depredations in the Cherry trees, is known by the familiar name of the Cherry Bird. Prof. W. D. Peck, in his "Prize Essay on the Natural History of the Canker Worm," remarks: "The principal check provided by nature upon the too great increase of this insect, is the *Ampelis Garrulus* of Linnaeus, called by Mr. Catesby, the Chatterer of Carolina, and in Rev. Dr. Belknap's History of New Hampshire, the Cherry Bird. This bird destroys great numbers of them, while in the larva state."

Birds that eat fruit are observed to prefer insects, and to resort to fruit only when insects are scarce or placed beyond their reach. The author of "The Journal of a Naturalist" says of the Fieldfare, a bird resembling the American Robin: "In this county (Gloucestershire) the extensive low lands of the river Severn, in open weather, are visited by prodigious flocks of these birds; but as soon as snow falls, or bad weather comes on, they leave these marshy lands, because their insect food is covered or become scarce, visit the uplands to feed on the produce of the hedges; and we see them all day long passing over our heads, in large flights, on some distant progress, in the same manner as our Larks, at the commencement of the snowy season, repair to the turnip-fields of Somerset and Wiltshire. They remain about during the continuance of these causes

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which incited their migration; but as the frost breaks up, and even before the thaw has actually commenced, we see a large portion of these passengers returning to their worm and insect food in the meadows, attended probably by many that did not take flight with them."

The services of the common Robin, as the guardian of our fields and agricultural crops, are of such an indispensable character, and so far exceeding those of any other bird, that I feel constrained to devote a considerable portion of this essay to his defence. A few years ago, the Horticulturists in the vicinity of Boston, annoyed by the depredations of the Robin upon their early fruits, petitioned the Legislature to strike out the name of this bird from the list of those which are protected by statute. The subject was referred to a Committee, who were ordered to make inquiries and report upon it. Prof. J. W. P. Jencks, Chairman of this Committee, has published in his Report some new and important facts, that clearly establish the character of the Robin as one of the farmer's friends.

The course he pursued was to kill one Robin daily, and carefully examine the undigested food which it had eaten. From these daily examinations, not a particle of vegetable food was found among the alimentary contents of this bird, from the early part of March to the first of May. Insects of many species, in all stages of growth and development, were its sole food. Nine-tenths of the aliment collected during this period consisted of one kind of larva—that of the Bibio Albipennis of Say. Of this larva, from one to two hundred, in a fresh condition, were frequently taken from a single bird.

This fly, according to Dr. Fitch, comes abroad about the 20th of May, and continues a little more than two weeks. It is very common in fields of growing wheat, and probably lives at the expense of this crop. It is found, however, abundantly upon other vegetation, resting upon the leaves and flowers of the garden, and in mowing lands and pastures. It may be recognized by its frequency, its white transparent wings, and its black body, clothed with soft white hairs. The larva of

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this insect is very pernicious, by feeding upon the roots of plants and causing them to perish, and doing great mischief to strawberry plats, vine-borders, and other places where the ground is not disturbed in spring and autumn. An English writer states that the ranunculus beds in his garden were destroyed by the larva of one of this genus, for several years in succession.

These facts lead to the conclusion that the Robin fairly earns his feast of fruits, by ridding the garden and orchard of one of their most destructive pests. The large quantities of this Bibio larva which he consumes during the early spring months, explains in part a certain habit observed in the ways of Robins, of scattering themselves singly over the fields and other grounds. The larvae of the Bibio are gregarious, living together in swams, perforating the ground, and making it resemble a honey-comb. The parent fly deposits her whole stock of eggs in one spot, and the Robin, finding this treasure, resorts to it day after day, until the whole mass is consumed.

The Bibio larva was not found in the food of the Robin after the middle of June, but was replaced by a variety of insects and worms; also, caterpillars, spiders and beetles of the family Elateridae—the parents of the well known wire-worms, so destructive to various kinds of seeds, when committed to the ground. The earth-worm was employed by the old birds for feeding their young, but sparingly used for its own food. In the season of cherries and strawberries, these and other pulpy fruits were found intermingled with insects in such proportions as to show that the Robin never uses an exclusively frugivorous diet. He employs fruit as a *dessert*, not as a substantial meal. The mixed diet of the Robin continues from the ripening of strawberries until October; the vegetable part consisting in August and September of the berries of the Poke and Elder. After this date, he feeds upon grass-hoppers and other orthopterous insects. A few Robins linger in our woods after the general migration of the species, when they are often obliged to feed upon winter-berries, especially if the snow has covered up

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their supply of dormant insects. These and other important facts may be found in Prof. Jenck's interesting Report.

I will now proceed to speak of my own experience in regard to the habits of the Robin. This bird is not omnivorous: his food consists more entirely of insects than any other bird that can be named; for the other large Thrushes will occasionally swallow a grain of corn, which the Robin has never been known to do. He has been accused of living upon fruits alone, and by others of adding no other article to his feast of fruits except earth-worms, which are believed to be profitable to the soil. He is often seen, after a shower, drawing a worm from its hole; but this is more frequently a cutworm than anything else, as I have ascertained by repeated observation. He also devours, indiscriminately, nearly all sorts of insects that crawl upon the surface of the soil, except those of a very minute species. He prefers the corneous insects for his own food, and uses worms and larva chiefly for his young that require soft food. Earth-worms are not relished by old birds, save the Marsh birds, when they can obtain orthopterous and other hard-shelled insects; poultry, though greedy consumers of earth-worms early in the season, will always reject them for grasshoppers, when they can take their choice.

A very small proportion of the insectivorous birds take their food from the ground, but confine their labors to the leaves and branches of trees, as explained in my preceding remarks on foraging. To the Robin and other Thrushes, the Blackbirds, the Grackles and the gallinaceous birds has Nature chiefly entrusted the work of ridding the surface of the ground of noxious insects. But of all species, the Robin is in this respect the most useful, in our own land. He is peculiarly the guardian of the grass-field and of all our annual crops. Hence we find the number of Robins in the suburbs of our cities greater than in the rural districts, because they find the most food where the soil is in the highest state of cultivation, giving birth to proportional quantities of insects. There are no other birds that could supply their place with equal advantage

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to these crops. The other Thrushes are too shy to frequent our gardens, and Blackbirds and Plovers cannot be sufficiently domesticated.

It is not probable that we could raise more than half the usual produce of our fields and gardens, if the Robin were exterminated. He destroys nearly all kinds of worms, grubs and caterpillars that live upon the green-sward and cultivated land, and large quantities of crickets and grasshoppers, before they are fully grown. The grubs of locusts, of harvest-flies and of beetles, and the pupae of the same, when turned up by the plough; apple-worms when they leave the fruit and crawl about in quest of a new shelter; those subterranean caterpillars, or cut-worms, that come out of the earth to seek their food; all these and many others are eagerly devoured by the Robin. Cut-worms emerge from the soil during twilight to seek their food; and the Robin, one of the earliest foragers in the morning, and one of the latest in the evening, takes great quantities of cut-worms at such hours.

The number of this race of caterpillars is so great that "whole cornfields," according to Dr. Harris, "are sometimes laid waste by them. Cabbage plants, till they are grown to a considerable size, are very apt to be cut off and destroyed by them. Potato vines, beans, beets, and various other culinary plants, suffer in the same way. The products of our flower-gardens are not spared; asters, balsams, pinks, and many other kinds of flowers, are often shorn of their leaves and central buds, by these concealed vermin."

The Robin is an indefatigable destroyer of these caterpillars, feeding his young with them almost incessantly. And when we consider that this bird always raises two broods, and often three broods, of young in a season, we may judge that his demands for insect food, especially in its larva state, must exceed that of any other species. Last summer, (1861,) having been confined nearly all the season to the house by illness, I had ample opportunity to watch the habits of the few birds that could be seen from my windows. These were chiefly Robins,

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Bobolinks, Grackles and other Blackbirds, as well as multitudes of Sparrows. Though a continual warfare was waged against the Grackles, by the owners of the fields, I saw enough to convince me that they were warring against their own friends and servants. The Robins were very numerous and familiar in my neighborhood (the west end of Somerville and North Cambridge). One pair had a nest very near my house; and were rearing a second brood in the month of July, when the soil was so greatly parched by drought, that if Robins lived only upon berries and earth-worms, they must have starved to death. I had often seen these birds at a distance pecking vigorously upon the sward, and then drawing out a worm. I knew that there were, at this time, no earth-worms near enough the surface to be within the reach even of the long-billed Snipes. But when the bird was near enough, I could distinctly see, by the form and appendages of the creature, that it was invariably a cut-worm of a large species and of an olive green color. The female bird was the most industrious. She would carry off one of these grubs as often as once in five minutes, whenever I watched her movements, and very often she would have two in her bill at a time. One day, close under my window, I saw her bear off three cut-worms at once, all of which were taken before my sight in a space of about a rod square. Never did I see, at any time, an earth-worm in the mouth of this bird, during this month, nor anything else except cut-worms, of which this single pair must have destroyed an incalculable number. The old birds probably swallow all the hard insects, and save the larva exclusively for their young.

The fondness of the Robin for juicy fruits, which is the cause of the complaints brought against him, is not peculiar to his species; but it is most remarkable in birds which are exclusively insectivorous. And it is well to consider that Nature does not grant us a benefit without taking some compensation. We must be content to pay for the services of our useful birds, by allowing them, as a perquisite, a certain portion of the fruits of our soil. We must pay the Crow and the Blackbird

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in corn, and the Robin and the Cedar Bird in cherries; and if it be objected that the Robin-tax falls disproportionately upon the fruit-growers, so, on the other hand, the Blackbird tax falls disproportionately upon the farmer and the corn-grower. These evils, except as they can be prevented by watchfulness and ingenious contrivances that do not harm the birds, must be patiently endured for the common good.

Early in May, in 1858, I caught and caged three young Robins, after they were fledged, for the purpose of studying their habits of feeding. I commenced by giving them earth-worms and soaked bread. They soon died, evidently from the effects of their farinaceous diet. I then took two others from the nest, and fed them on earth-worms alone; but upon discovering, after a few days, that they were drooping, I fed them afterwards on insects combined with a small quantity of earth-worms, and they immediately revived. All kinds of insects they devoured with eagerness, and remained healthy and vigorous. I never knew them to refuse one of any description, though I offered them no insects with stings, nor any hairy caterpillars. All kinds of beetles, moths, grubs, crickets, wire-worms, crysalids and smooth caterpillars they freely accepted. The manner in which the Robin managed these insects was proof that they agreed with his instincts. They were placed upon the floor of his cage, and on picking them up, he killed them in a way that showed that he knew how they ought to be managed, as a cat knows how to seize a rat or a mouse, though she has not been instructed. He was particular in beating the wire-worm, before he swallowed it, but he never refused to eat one. On one occasion, having swallowed a hard beetle, and finding it incommodious, he threw it up by a ruminating effort, seized it again, thrapped it awhile against the floor, and then swallowed it a second time. This maneuver proved his instinctive knowledge of the mode of proceeding in such emergencies; and it is hardly necessary to repeat the truism, that no animal or bird can know how to manage a

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living thing which he is going to devour, unless it be his natural food.

It is now generally understood that the public will not consent, for the gratification of fruit-growers, to exterminate the Robins; when the people fully understand the value of Grackles and Blackbirds, these will also be protected; and farmers and horticulturists must devise certain expedients to defend their crops from their depredations. The granivorous species should at certain seasons be fed with grain at the public expense; and for the fingivorous species, Cherry trees should at the public expense, be planted abundantly by the roadsides. The number of Robins would not be increased by this greater abundance of fruit, because fruit is not their staple article of food; their subsistence is dependent entirely on the supply of insects. But in proportion to the general cultivation of fruits, will the depredations of the Robin and the Wax-wing upon the trees of our gardens be diminished.

It is equally important, for the same end, to encourage the growth of the early wild fruits. It is in the vicinity of Boston and other large towns that the fruit growers suffer the most damage from the birds, because the Blueberry bushes which afford them a supply in the country, have been extirpated from the wild lands near the former places. Blueberry bushes should be planted extensively along the sides of fences in all fields which are used for mowing or pasture. Thousands of miles of stone-wall, in the vicinity of every large town, might be bordered with these wild fruits, to supply the birds with a dessert and divert them from our gardens. Without occupying any valuable space, these blue-berry bushes would feed the birds and produce tons of berries to employ the diligent hands of women and children of poor families, who would gather them for the market. When such provision is made by our different legislatures, or by private munificence, the birds will be satisfied and our gardens will be secure.

There need be no fear that birds will multiply beyond their means of support, as spontaneously furnished them by Nature.

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When man makes no efforts to destroy them, birds of every species will multiply in proportion to their supply of food, on the one hand, and to their shelter and conveniences for building their nests and rearing their young, on the other. Blackbirds diminish in numbers, while Robins multiply, as the country is cleared and cultivated, and the improved tillage causes an increased supply of their insect food. This is because the protection which the Robin receives is denied to the Blackbird. But if men are disposed to complain of the larger proportion of Robins in their own vicinity, let it be remembered that the greater amount of land in high cultivation requires a proportionally greater number of these birds to devour the insects which are engendered by the more extensive cultivation of the soil; and if they are kept below this limit, the insects upon which they feed will have an insufficient check upon their over-multiplication.

It is necessary, for the interest of agriculture, that birds should be fully up to their supply of insect food; but this cannot be, on account of the numerous ways in which they are exposed to destruction; by cats, by birds of prey, by gunners, and by juvenile nest-hunters. It is the duty of legislators, therefore, to make laws for their protection; and to render these laws effective, public opinion must be enlightened with respect to the utility of birds; and the people should be made to understand that, as soon as the abundance of insects is increased disproportionally to the number of birds that feed upon them, their crops will suffer in the same proportion. Not an acre of cultivated land in the whole country should be without a pair of Robins; and protection should be extended to all other birds, except the rapacious tribes.

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ESSAY

ON THE CULTIVATION OF CRANBERRIES.

BY NATHAN PAGE, JR.

The first thing necessary for a novice in the art of Cranberry growing, if he intends to engage in that business, is to learn what has already been done by others. It is quite too expensive for a man of ordinary means to attempt a new business without first informing himself in regard to it. A wealthy man can, if he chooses, proceed ignorantly, and bear, without injury, the ill success that he is quite likely to meet with. A poor man most certainly cannot afford such risks. He *needs* to be reasonably sure of success—not a partial, but a paying success. Most men *desire* good and profitable results from their labors, whatever their necessities may be.

One most excellent way to get information, is to visit the grounds of other cultivators. To inexperienced persons I would say:—You can learn in six days' time, spent with successful cranberry growers of different places, many important facts that it might cost you six years of experimenting to obtain. You should see the different situations in which cranberries flourish, and the various soils on which they succeed, that you may be able to judge intelligently of the value of your own grounds for cranberry growing. You should see which, of all cultivated vines, are the most hardy and prolific. You should compare the qualities of different varieties, and learn which is best, and which would be most profitable for growing in the soil and situation at your command. But you should particularly observe the various modes of cultivation, and note the cost and the comparative success. If you would get the most valuable information on any branch of agriculture, ask it

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of him who has made the study and practice of that *his special business.*

It is possible to grow cranberries on almost any kind of soil. Probably there is not a farm under cultivation in all New England, on which cranberry vines cannot be made to flourish and to produce more or less fruit. But there are two kinds of soil on which it will *pay* to cultivate this valuable fruit. Clean, moist sand, and wet meadow or bog soils are most suitable. In Essex County there are many hundreds of acres of wet meadow lands, that now produce only small crops of poor grass, and worthless crops of moss and weeds. Such soil is excellent for cranberries. Indeed, cranberries of many varieties, and of good quality, grow spontaneously along the borders and elsewhere on these meadows in all parts of the county. Thus, we have suitable lands; we have good vines; the crop can be profitably grown; there is no reason why we should not succeed in this comparatively new branch of agriculture.

I will note some points that may be of value to beginners. First,

SELECT GROUND THAT CAN BE OVERFLOWED.

This is essential to the best success. On all meadow, bog or peaty soils, the vines should be covered with water, from twelve to twenty inches deep in winter. This is especially important where the vines are kept free from moss, as they should be. A more shallow depth of water is not so good, for it is liable to become frozen quite through in extreme cold weather. In that case the ice might seriously injure the vines. On some peculiar sandy soils, cranberry vines will do very well without winter flooding. But in our severe climate, they are in all cases much the better for such winter protection. There are other benefits—and very important ones—to be derived from the use of facilities for overflowing. The prevention of injury by spring frost, is one; the destruction of the cranberry worm is another. I may allude to these in another place. Another point is, to

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MAKE THE GROUND CLEAN.

Clear off all bushes and rubbish, and take off the turf to such depth that sedge grass and weeds will not spring up from their roots and grow again. The value of this turf, when piled and rotted, or composted, as a dressing for uplands, is usually greater than the cost of clearing it off and hauling. But if it were of no value, its removal is a work that should be done before planting the vines. The surface of the ground must be made smooth, and should be nearly level. A very slight inclination towards the drains is often useful, but is not absolutely essential if the soil is sufficiently porous. If the ground is all nearly at one level, the water may be kept at just the right height to give the needed moisture to the whole field of vines. This is important, especially in dry seasons.

DRAINING

Is often required to bring meadows into a workable condition. One leading drain or open ditch, with a free outlet, is always needed in such lands.

A few side ditches, leading to the central one, are usually necessary. Sometimes an outside drain is wanted along the borders of the meadow, to cut off the flow of water from the higher lands around. Very cold water should be kept from the vines in summer and autumn. It is injurious to the vines, and retards the growth and the ripening of the fruit. If a dam is built to overflow the ground in winter, the outlet through it, at the end of the principal drain, should be made low enough to take off the water to the bottom of that drain, or to the depth of thirty inches or more from the surface.

Apertures made through the gate at various heights, may be opened or closed so as to completely control the depth, or rather height, of water in the drains. This ability to regulate the flow of water, will often make the difference between a large crop of nice fruit, and a small and every way inferior crop.

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WHEREVER IT IS POSSIBLE COVER THE GROUND WITH SAND.

Clean, coarse sand is best. If the soil is covered only two inches in depth with sand, it will be of great service; but three or four inches deep would be still better. A thick layer of sand will keep down most kinds of weeds, and prevent grass from growing among the vines. Some men have made cranberry culture profitable, where it required the constant labor of one man three or four months of the warm season to keep half an acre of vines clear of weeds: but it is far better to spend a month or two to prevent weeds from growing. Cranberries have been sold at such high prices for a few years past that almost every method of culture has been profitable. Even the worst modes have paid fair dividends on the cost; but the best alone are to be recommended. Skilful culture may yet make cranberry growing profitable, even if the fruit should sell for something less than one dollar per bushel. Where no sand can be obtained, *gravel* may be spread on the meadow after the turf has been removed. The less loam the gravel contains, the better. It should not be spread on in very great quantities, for it is not so suitable as sand for the vines to grow in. A thin layer of about an inch, is, in some cases, better than more.

THE BEST TIME TO SET THE VINES IS SPRING.

Cultivators who have vines always at hand on their own grounds, frequently plant them out when it is most convenient, either in May and June, or September, October and November. If set in autumn, which in many cases is most convenient, the earlier it is done the better. Vines that are set in September become well established before winter, and will throw out most vigorous runners the next season. The vines should be

SELECTED

In autumn, while the fruit is on them. You may be certain, then, of getting only fruitful vines. It is said that vines taken up in autumn, and kept in a cellar till spring, have been plant-

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ed with good success. Cool and moist is the rule for keeping them. But it is much less trouble, usually, and a much better way to take up the vines near the time of setting.

PLANTING THE VINES.

When plenty of vines are to be had near by, and growing in a clean soil, masses of roots and earth, six inches in width and one foot in length, may be taken up and set in rows two feet apart and at eighteen inches distance, from sod to sod, in the rows. Some prefer setting narrow strips, or cuttings of cranberry sod, quite close together, and in rows about fifteen inches apart. Sods containing grass weeds or moss should never be planted on grounds that are to be cultivated. The vine roots in such sods must be separated, and, after the grass is removed, they may be set from six to ten inches apart along drills eighteen inches apart. This is the most common mode, and the most suitable under various circumstances. Slips of vines or cuttings, three or four inches long, are sometimes used instead of rooted plants. These may be set closely in drills, and sloping in one direction along the row, the lower ends being covered about an inch deep, or more if the soil is not quite moist. It is said that cuttings, five or six inches long, if bent downwards in the middle and covered an inch deep with soil, will root quickly and send shoots from each end. The method is worth trying. Cranberry vines take root so readily in favorable soils, that, if sown broadcast, and tramped or harrowed in, they will grow pretty well. But such methods cannot be recommended where the best culture is to be given.

HOEING AND WEEDING

Must be attended to, if the ground requires it. These are difficult operations after the runners spread over the surface and take root. They should be disturbed as little as may be consistent with clean culture. A man who has weeded cranberry vines two or three seasons, will understand the importance of taking off a few inches of the top soil of meadows, and

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covering the surface with sand before setting cuttings or plants.

GATHERING THE FRUIT.

Cranberries should be *well ripened* before being gathered. If picked before they are fully grown, they are bitter. The same fruit that is inferior, bitter, and nearly worthless when taken off too green, would be excellent if fully ripened on the vines. Unripe berries, if spread in thin layers on shelves, or on the floor of a room, become well colored by exposure to light; but the ripe appearance does not make the quality good.

Severe frost injures unripe cranberries. This causes some to gather them too early. Perhaps the fruit might be protected, if necessary, a few frosty nights in September, in the same way that the blossoms are, sometimes, in spring. Three or four small piles of turf, or brushwood and peat, placed around the border of the meadow, are set on fire in the evening when there is danger of frost. These fires are left to smoulder all night. The smoke settling over the surface of the meadow, is sufficient protection in quite cold nights. Three or four fires, if properly arranged, will often protect two acres of vines or more.

The cranberry-rake is much used in gathering the fruit on wild meadows. On cultivated grounds, hand-picking is much the best. The fruit so picked is all clean and nice, and unmixed with bruised or worthless berries. The rake injures thickly grown vines exceedingly. It is necessary, after using the rake, to go over the ground again and pick by hand considerable fruit that it leaves among the vines. To pick wholly by hand, costs about fifty cents per bushel, usually, but sometimes a little less. The nicer the fruit is grown, the more important it is to pick by hand.

KEEPING.

Cranberries, *if well ripened and properly gathered and assorted*, can be kept as easily as winter apples, and for a much longer time. Some persons put them in barrels, soon after being

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gathered, and place them in a cool and airy situation at the north side of a building. They are left piled up there till quite late in the season; but when in danger of freezing, they are taken within doors. During winter they are kept in the cellar.

Small quantities may be spread on shelves, or floors of airy unused rooms. They may thus be kept nice till time to put them in barrels and remove to the cellar. Cranberries are often put into clean kegs or casks, which are afterwards filled with pure cold water, and made tight, and are then sent safely through all climates, to the most distant markets. When the fruit is raked from the vines, it may be kept for a time in the chaff, and be winnowed and sorted late in the season, or at the time of disposal.

SELLING THE FRUIT.

This is an important part of the business. Very often, the whole difference between very great and very small profits, is the result of greater or less skill in selling. It is useless, perhaps, to undertake to give directions in this, for success consists principally in mere tact and ability to judge of the proper time, place and mode of disposal. I will venture a few hints, however.

A man who grows nice cranberries and ripens them well, and who invariably puts them up well assorted and clean, can easily obtain from fifty cents to one dollar and twenty-five cents per bushel more than one who is careless on these points. So, too, a man who informs himself which are the best markets, will find the best customers there, and so obtain better prices.

Many cranberry growers are at present rather too much at the mercy of shrewd cranberry dealers in Boston and elsewhere. These buy up the crop in the fall, at their own prices, and ship them off to various ports later in the season, making enormous profits by the transfer. This may be borne, for in time more of the fruit will be grown, and prices will become more equal as the markets will be more numerous, and much more gen-

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erally known. But there is one imposition that should never be submitted to. It is that of selling to dealers, as some of them demand, five pecks for a bushel. Four pecks of cranberries, *level measure,* are one bushel. It is by this measure that the dealers themselves sell them, except when charging an extra price for heaped measure—which is *not* the legal one.

Cranberry growers would do well to find a market for a large portion of their fruit in Europe. If they would take the trouble to find customers there, and would put up the fruit properly, and ship it directly to them soon after being gathered, it would be far more profitable than to let it pass through a dozen hands, as some of it does now. A more extensive introduction of our unrivaled American Cranberry into France, England, and other countries, would soon give a great and unfailing demand.

The English already pay high prices for a scant supply of this luxury. Only a few can use them freely yet; but with a better supply of the finest berries, at reasonable prices, they would be more extensively called for each coming year. One cranberry grower in the north part of our County, told me lately that he would pay half the expense of sending an agent to England, to obtain information in regard to their markets, and make arrangements for the disposal of cranberry crops to be sent directly from the producers.

TIME FOR OVERFLOWING THE GROUNDS.

This is usually done soon after cleaning the vines, or about the last of October in this climate. The water should remain on all winter, of sufficient depth to prevent its becoming frozen through to the ground. It should be drawn off, *just down to the tops of the vines,* early in May, or as soon as the weather has become mild. The vines will then receive some benefit of sunlight and warmth, and the water will still prevent injury by frost. The crop is often greatly damaged, and occasionally almost wholly cut off by late spring frosts, where water is not kept among the vines to protect them, and prevent them from

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blossoming *too early*. In June, after all danger of frost is past, the water must be drawn off entirely. If the water is not too cold, it will be of great benefit to raise it, in the dry season, so as to give moisture to the roots of the vines.

Overflowing in winter, prevents, in a great degree, the attacks of the cranberry worm,—that pest which sometimes destroys a large portion of the fruit. Mr. A. H. Leland, of Sherburne, stated, in 1853, that he completely exterminated the *vine* worm, the year previous, on vines that had been "yearly eaten up by them since 1840," by keeping the vines under water from "spring till the first of July."

It may be well for me to add some notes on the *varieties of cranberries* which are most extensively grown. They are all of one species—the American, or *Oxycoccus Macrocarpus*. Only one other species is known, I think, in this country; and that is a small upland cranberry, the *Oxycoccus Palustris*. It is said to be of good quality, and it grows only on *dry, poor soil*. It has not yet been tested by cultivation, but it is not probable that its culture can be made profitable here. Some persons may, however, be disposed to try it, as the upland culture of our American species is nearly played out.

There is a shrub (species of *Viburnum*) that bears pretty clusters of small, bright red berries, having a pleasant acid flavor, or taste, and which are called "bush" or "tree cranberries,"—but they are no more cranberries than choke-cherries are gooseberries.

Of the varieties cultivated here, the large dark crimson cherry is considered one of the best—perhaps it is the very best. Its quality is excellent. It ripens early. In color it is much richer than others, and its very handsome form and appearance adds something to its market value. Its size is large when well grown. It can easily be made to attain the size of three-fourths of an inch in diameter each way. Both on clean meadow and on moss, I have seen it this season, averaging about that size, with many berries considerably larger.

The largest cranberries that have been grown in quantity, in

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Essex County, are of an egg-shaped variety. I do not know whether or not it belongs to the Bugle class. It certainly does not resemble either the Cherry or the Bell class, in form. Mr. Hildreth, of Manchester, cultivates this sort with most enviable success. A large portion of his berries, of this kind, grown this season, measured three-fourths of an inch in diameter one way, by one inch the other. Some were larger. The fruit is much lighter in color than the Cherry variety, and, I think, a little later in ripening. It takes a lively hue late in the season, but does not become dark crimson, like the Cherry. It is of excellent quality, and commands a high price in market. The vines of both these varieties are very prolific.

The Bell cranberry is a good variety, or rather, class, and with the best culture the berries grow quite large. I have seen single specimens of this kind measuring seven-eighths of an inch broad near the blossom end, the diameter the other way being a trifle less. It is a valuable and profitable kind, and is extensively cultivated in Barnstable County, on the Cape. I speak of the Bell cranberry as a class, because there are many varieties that, merely from their form, pass under that name. They have properties well nigh as distinct from each other as so many seedling apples. The same is true of the Cherry and the Bugle classes. With our little knowledge of cranberries, we speak of them, usually, as we sometimes do of strawberries, as Scarlets, Woods, or Pines. But these are only general terms, and we have learned that every Scarlet is not an Early Virginia, nor every Pine a Moyamensing. We shall yet learn as much of cranberries.

IMPROVED VARIETIES.

Some effort is usually made, in planting vines, to select the best; but I have never seen, in our County, a large bed entirely of one, or two, or even three varieties. If every person engaged in cranberry growing would select, each year, a single plant of the most prolific kind, or one bearing the finest berries, and set it apart from others, propagating from runners only,

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the best sorts might be tested thoroughly. Then let the various growers compare notes yearly, give the very best sorts each a name and a character to start in the world with, and very great improvement must be the result.

But there is still another field of operations;—it is to raise *new varieties from seed.* It is not necessary to say much on this point. It is something that can be done, and will be done, until substantial advance is made in this as in other fruit, and other agricultural productions. But, pray, Messrs. Cultivators, pray don't impose upon each other, and the more ignorant public, by sending out inferior varieties as worthy of attention. Don't propagate shams. Don't give fictitious characters to any sort, whether good, bad, or indifferent. One who don't fear the outward disgrace of deceiving others and selling humbugs, should still dread to feel the littleness of a mean soul within. Few farmers may need such words—I hope none. Look to the seedlings, then, for time and attention and skill shall make improvements in these, as they have in currants and gooseberries, blackberries, raspberries and strawberries. Room, room, then, for extra nice varieties of cranberries—the Brighton Pines, Hovey's Seedlings, and Scarlet Magnates of the swamps and meadows.

The marshes and bogs of Essex may yet glow with scarlet and crimson fruit far superior to any that can be gathered from them to-day.

But one thing more I desire to allude to. It is, the importance of adding one more to the staple productions of our County. Some branches of agricultural industry have become less profitable than they were years ago. In grain growing, we cannot compete with the West, even in our own home markets. Neither can we in stock raising. Even dairying is mostly out of our hands. In regard to wool growing, I regret to say that we keep many more dogs than sheep. Even growing vegetables for our city markets is now only profitable to those who live near them. Several other branches of the business are too much crowded. Some labor, then, can well be

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spared for the production of another crop. To farmers in some situations, cranberry growing would be a far more profitable business than any other they could follow. But if it were only equally profitable, it must still be advantageous to pursue it.

The more varied our branches of successful industry may be, the more self-reliant we are, and the more independent of fluctuations in business, and even national changes, we become. The theme is exhaustless, and I will not pursue it farther. Yankee shrewdness and enterprise now buys cargoes of foreign productions with the mere frozen water of our frigid winter clime—Yankee intelligence and industry may yet sell fine summer productions of marsh water and sun-light for many pounds of foreign silver and gold. May the pioneers reap their proper reward.

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Dr. William Sutton, Treasurer, in account with the Essex Agricultural Society. Cr.

1860.			1860.		
October.	To balance of old account	$891 26	October.	By amount of Premiums and Gratuities awarded by the Trustees, 1860–61	$742 25
	To nett receipts of Exhibition in 1859	370 14		By Expenses as follows:	
	To State Bounty	600 00		Exhibition in 1861 601 37	
	To Bank Dividends in October, 1860	263 99		Printing 310 30	
November.	To New Members	60 00		Secretary's Salary 100 00	
1861.	To Receipts of Exhibition in 1860	655 85		Freight, Postage, &c 43 25	
January.	To Treadwell Farm	47 25		Treadwell Farm 6 50	
April.	To Bank Dividends	254 23		Colman Library 31 90	1,093 32
September.	To Essex Railroad coupons	50 17		Balance to new account	1,471 82
	To Interest on Loan	18 00			
	To unclaimed prems., cr. Colman Library	96 50			
		$3,307 39			$3 307 39

FUNDS BELONGING TO THE SOCIETY.

16 shares Warren Bank, cost	$1595 40	Amount brought up	$9535 13
12 " Exchange Bank, par	800 00	Deduct amount due Colman Library account	622 51
22 " Commercial Bank, cost	1471 66		8912 62
7 " Mercantile Bank, par	700 00	Funds on hand 1860 8396 66	8396 66
6 " Merchants Bank, par	300 00		
5 " Village Bank, par	500 00		
3 " Salem Bank, par	225 00	Gain in 1861	515 96
15 " Danvers Bank, cost	1471 25		
Notes Receivable	300 00	The balance in favor of Treadwell Farm acct, to this date, is	$108 41
Essex Railroad Bonds, par	700 00		
Cash on hand as above	1471 82		
	$9,535 13		

E. E. WILLIAM SUTTON, Treasurer.

SALEM, November, 1861.

We have examined the above account and the vouchers of the Treasurer, and hereby certify that we find said account correct in all its parts.

WILLIAM H. FOSTER, } Auditing
WILLIAM L. WESTON, } Committee.

SALEM, November 13, 1861.

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Officers of the Society,

FOR 1861--62.

President.

ALLEN W. DODGE, of Hamilton.

—

Vice Presidents.

LEWIS ALLEN, of South Danvers,
JEREMIAH COLMAN, of Newburyport,
DAVID CHOATE, of Essex,
JEREMIAH SPOFFORD, of Groveland,

—

Treasurer.

WILLIAM SUTTON, of South Danvers.

—

Secretary.

CHARLES P. PRESTON, of Danvers.

—

Honorary Trustees.

JAMES H. DUNCAN, of Haverhill,
JOHN W. PROCTOR, of South Danvers,
RICHARD S. FAY, of Lynn,
DANIEL ADAMS, of Newbury.

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Trustees.

JONATHAN BERRY, of Middleton,
ROBERT BROOKHOUSE, Jr., of Salem.
WILLIAM COGSWELL, of Bradford,
RICHMOND DOLE, of Georgetown,
FRANCIS DODGE, of Danvers,
THOMAS P. GENTLER, of Manchester,
JOSEPH HOW, of Methuen,
JOHN M. IVES, of Salem,
JOHN B. JENKINS, of Andover,
JOHN KEELEY, of Haverhill,
E. G. KELLY, of Newburyport,
JOSEPH KITTREDGE, of North Andover,
CYRUS W. LORD, of Beverly,
GEORGE B. LORING, of Salem,
I. OSGOOD LORING, of North Andover,
LAMBERT MAYNARD, of Bradford,
JOSEPH NEWELL, of West Newbury,
JOSIAH NEWHALL, of Lynnfield,
HENRY K. OLIVER, of Salem,
WILLIAM OSBORN, of Lynn,
PAUL D. PATCH, of Hamilton,
EDWARD H. PEARCE, of Gloucester,
BENJAMIN C. PUTNAM, of Wenham,
WILLIAM R. PUTNAM, of Danvers,
JONATHAN F. PHILLIPS, of Swampscott,
CHARLES ROGERS, of West Newbury,
PAUL TITCOMB, of Newbury,
HORACE WARE, of Marblehead,
E. S. WILLIAMS, of Newburyport,
ENOCH WOOD, of Boxford.

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The Trustees whose term of office will expire on the day of the annual meeting of the Society in 1862, are :—

Joseph How,
E. G. Kelly,
Lambert Maynard,
Enoch Wood,
Jonathan Berry,
John Keely,
Thomas P. Gentlee,
Henry K. Oliver,
Joseph Kittredge,
Francis Dodge.

EW MEMBERS---1861.

John C. Adams, Newbury,
Hayden Brown, West Newbury,
P. R. Basford, South Danvers,
Joseph Batchelder, Wenham,
William B. Carlton, Haverhill,
Joseph S. Chase, Manchester,
William Chickering, Andover,
Arthur M. Greene, N. Andover,
John D. Hildreth, Manchester,
Salmon D. Hood, Topsfield,
George Hosam, West Newbury,
Leverett Hubbard, N. Andover,
Joseph S. How, Methuen,
Elisha G. Hyde, Danvers,
John S. Ives, Salem,
Theron Johnson, N. Andover,
James Kimball, Salem,
James Manning, Hamilton,
Philip Marsh, South Danvers,
David Merritt, Jr., Salem,
Charles C. Mosely, W. Newbury
William Noyes, Jr., "
Anson W. Noyes, "
Stephen Noyes, "
Oliver Porter, Hamilton,
Henry Poor, South Danvers,
John L. Russell, Salem,
Daniel E. Safford, Hamilton,
Thomas Sawyer, Boxford,
Daniel S. Tenny, Newbury,
Abial Wilson, N. Andover.

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☞ Any citizen of the county may become a member by paying the sum of three dollars to increase the permanent funds of the Society, and he will receive a certificate of his membership from the Secretary. No fines or assessments are ever imposed. Members are entitled to the free use of the Library and a copy of the Transactions each year. All ordained ministers of the gospel residing in the county, and editors of newspapers, published therein, are entitled to the privileges of the Library.

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LIST OF PREMIUMS, &c.

FAT CATTLE.

Joseph Kittredge, North Andover, first premium,	$10 00
do do second premium,	8 00
Philip Marsh, South Danvers, third premium,	5 00

BULLS.

Eben G. Berry, Danvers, Jersey, premium,	10 00
T. W. Peirce, Topsfield, Ayrshire, premium,	10 00
Ben Perley Poore, West Newbury, Short horn, prem.,	10 00
M. C. Adams, Danvers, Native, 1st premium,	10 00
Israel Trask, Beverly, Native, 2d premium,	5 00

MILCH COWS.

David Merritt, Jr., Salem, Native, 1st premium,	$10 00
John Abbott, South Danvers, 2d premium,	8 00
E. S. Poor, South Danvers, Grade Ayrshire, 3d prem.,	5 00

HEIFERS.

Eben S. Poor, South Danvers, three years old, 1st pre.,	7 00
do do do 2d prem.,	6 00
William H. Brown, S. Danvers, two years old, 1st pre.,	5 00
S. A. Merrill, Salem, two years old, 2d premium,	4 00
W. S. Messervey, Salem, two years old, 3d premium,	3 00
Joseph Longfellow, Newbury, yearling, 1st premium,	4 00
Mrs. Richardson, Salem, yearling, 2d premium,	3 00
Eben G. Berry, Danvers, yearling, 3d premium,	2 00

CALVES.

Richard S. Fay, Lynn, 1st premium,	5 00
Eben S. Poor, South Danvers, 2d premium,	3 00

WORKING OXEN.

Hazen Ayer, South Danvers, first premium,	10 00

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Joseph Longfellow, Newbury, second premium,	8 00
Elijah Pope, Danvers, third premium,	6 00
Richard S. Bray, Newbury, fourth premium,	4 00

STEERS.

Daniel Adams, Newbury, three years old, first premium,	6 00
Nathaniel Abbott, Andover, three years old, gratuity,	2 00
Nathaniel Porter, Beverly, two years old, first premium,	5 00

STALLIONS.

William P. Fay, Lynn, stallion under four years, 1st pre.,	7 00

BROOD MARES.

George B. Martin, Danvers, first premium,	10 00
Daniel Osborne, South Danvers, second premium,	8 00
Lewis Allen, South Danvers, third premium,	6 00

FARM AND DRAFT HORSES.

S. A. Merrill, Salem, first premium,	8 00
Nathan Bushby, South Danvers, second premium,	6 00

COLTS.

George Lucy, Newbury, four years old, 1st premium,	7 00
James N. Rolf, Newbury, three years old, 1st premium,	6 00
T. H. Balch, Groveland, three years old, 2d premium,	4 00
Amos F. Hobbs, Wenham, two years old, 1st premium,	5 00
J. C. Dennis, Marblehead, two years old, 2d premium,	3 00
M. B. Putnam, Danvers, yearling, 1st premium,	4 00

SWINE.

Joseph Kittredge, North Andover, boar, 1st premium,	5 00
Byron Goodell, South Danvers, boar, 2d premium,	3 00
Jacob Farnham, North Andover, breeding sow, 1st pre.,	5 00
Richard S. Rogers, S. Danvers, breeding sow, 2d pre.,	3 00
William Foster, North Andover, weaned pigs, 1st pre.,	5 00
Marshall C. Adams, Danvers, weaned pigs, 2d pre.,	3 00

SHEEP.

Charles Corliss, Haverhill, buck, premium,	5 00
Richard S. Fay, Lynn, Oxford Down ewes, premium,	5 00
do do lambs, premium,	5 00

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PLOUGHING—DOUBLE TEAMS.

Richard T. Jaques and R. S. Bray, Newbury, 1st pre.,	10 00
Franklin Alley and Andrew Smith, Marblehead, 2d pre.,	9 00
Hazen Ayer, South Danvers, 3d premium,	8 00
Jacob Farnham, North Andover, 4th premium,	7 00
D. L. Goodridge and M. H. Poor, W. Newbury, 5th pre.,	6 00
W. Foster and J. Kittredge, N. Andover, 6th premium,	5 00
Joseph Longfellow, Newbury, Michigan Plough, gratuity,	5 00

PLOUGHING—SINGLE TEAMS.

Richard T. Taques, Newbury, 1st premium,	7 00
J. C. Newhall, Lynnfield, 2d premium,	6 00
Franklin Alley, Marblehead, 3d premium,	5 00
Elijah Pope, Danvers, 4th premium,	4 00

PLOUGHING—HORSES.

Jacob Farnham, North Andover, 1st premium,	9 00
J. Coleman and M. S. Dole, Newburyport, 2d prem.,	7 00
David L. Goodridge, West Newbury, 3d premium,	5 00
Carey & Alley, Swampscott, 4th premium,	3 00

FARM IMPLEMENTS.

Whitcomb's Patent Horse Rake, gratuity,	3 00
Davis' Patent Radiator, gratuity,	1 00
Smith's Portable Laundry, gratuity,	1 00
Metropolitan Clothes Wringer, gratuity,	1 00
Haven & Whitten's Portable hot air Ventilating Furnace, gratuity,	1 00
Blood's Improved Coal Sifter, gratuity,	50
do do Flour Sifter, gratuity,	50
Vose's Garden Engine, gratuity,	1 00
Family Carryall, by Charles W. Brine, gratuity,	2 00
One Hearse, by Charles W. Brine, Carryall,	3 00

BUTTER.

Sarah L. Ridgeway, West Newbury, 1st premium,	8 00
Mrs. F. Stiles, Middleton, 2d premium,	6 00
Mrs. Dean Holt, Andover, 3d premium,	4 00

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CHEESE.

Mrs. C. M. Moulton, West Newbury, 2d premium,	6 00
Mrs. Mary P. Nelson, West Newbury, 3d premium,	4 00

EXPERIMENT ON MANURES.

Benjamin P. Ware, Marblehead, 1st premium,	15 00

ROOT CROPS.

Hiram A. Stiles, Middleton, summer turnips, gratuity,	8 00
Samuel Hutchinson, South Danvers, cabbages, gratuity,	8 00
George B. Courtis, Marblehead, onions, gratuity,	8 00
Hazen Ayer, South Danvers, mangolds, gratuity,	5 00

GRAIN CROPS.

Hanson Ordway, West Newbury, corn crop, gratuity,	10 00
Francis Little, Newbury, wheat crop,	8 00

CRANBERRY CULTURE.

John D. Hildreth, Manchester, 1st premium,	15 00
J. L. Colcord, South Danvers, 3d premium,	5 00

IMPROVEMENT OF PASTURE AND WASTE LANDS.

Oliver P. Killam, Boxford, 2d premium,	10 00

ESSAYS.

Wilson Flagg, Cambridge, premium,	10 00
Nathan Page, Jr., Danvers,	10 00

Awarded by the Committee on Poultry,	$19 00
" " " Vegetables,	38 00
" " " Fruits,	100 00
" " " Flowers,	25 00
" " " Articles from Leather,	26 00
" " " Counterpanes, Rugs, &c.,	30 50
" " " Fancy Articles, &c.,	50 50
" " " Bread and Honey,	10 00
Total,	$836 00

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RECAPITULATION.

FARMS, &c.

Amount awarded to		Experiment on Manures,	$15 00
"	"	Cranberry Culture,	20 00
"	"	Essays,	20 00
"	"	Improved Pasture and Waste Lands,	10 00
"	"	Ploughing,	96 00
"	"	Farm Implements, &c.,	14 00
			$175 00

FARM STOCK.

Amount awarded to		Fat Cattle,	$23 00
"	"	Bulls,	45 00
"	"	Milch Cows,	23 00
"	"	Heifers,	34 00
"	"	Calves,	8 00
"	"	Working Oxen,	28 00
"	"	Steers,	13 00
"	"	Stallions,	7 00
"	"	Brood Mares,	24 00
"	"	Farm and Draft Horses,	14 00
"	"	Colts,	29 00
"	"	Swine,	24 00
"	"	Sheep,	15 00
"	"	Poultry,	19 00
			$306 00

FARM PRODUCTS.

Amount awarded to		Corn Crop,	$10 00
"	"	Wheat,	8 00
"	"	Summer Turnips,	8 00
"	"	Cabbages,	8 00
"	"	Onions,	8 00
"	"	Mangolds,	5 00
"	"	Vegetables,	38 00
"	"	Fruits,	100 00
"	"	Flowers,	25 00
"	"	Butter and Cheese,	28 00
"	"	Bread and Honey,	10 00
"	"	All other objects,	107 00
			$355 00

Total,	$836 00

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TRANSACTIONS

OF THE

Essex Agricultural Society,

MASSACHUSETTS,

FOR THE YEAR

1862.

PUBLISHED BY ORDER OF THE SOCIETY, DECEMBER, 1862.

SOUTH DANVERS:
CHARLES D. HOWARD—PRINTER—WIZARD OFFICE,
1862.

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ADDRESS,

BY GEORGE J. L. COLBY, ESQ., OF NEWBURYPORT.

Mr. President and Gentlemen of the Society:

To most of you this is no ordinary occasion; it is one to which you look forward during the year as a day of pleasure and profit. On my part, I deem it a privilege to address you, as it is an honor to follow the wise, the eloquent, and the good men, who since the formation of your Society, more than forty years ago, have been called to perform the same service. Perhaps no agricultural association—national, State or county—can present a list of more distinguished orators; and yet you have never gone beyond the limits of the county for your annual addresses, proving thereby that this little seaside county is not less productive of mind than of the fruits of the field. Among those speakers have been statesmen, like Timothy Pickering, Leverett Saltonstall, and Caleb Cushing; lawyers, like Mosely and Duncan, Huntington and Abbott; clergymen, like Perry, of Groveland, Withington, of Newbury, Colman, of Salem, and Braman, of Danvers; physicians, like Spofford and Nichols and Kelly; practical farmers, like Newell, and Newhall, Daniel P. King, and George B. Loring; and with these have been many others of influence and character and

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talents, known and respected far and wide; among them all, however, I do not call to mind one person who made journalism a profession and a business. Perhaps I am the last of them who should have been called now; for it was not my good fortune to be born on a farm, to labor on a farm, or for a great length of time to live on a farm. Of practical husbandry I would take lessons of the most unlettered farmer in the county. I will not, therefore, detain you in discussing the details of agricultural pursuits; but there are topics relating to the normal employment of man, which is tilling the soil, fixed in the nature of things, upon which others may have views as clear and distinct, as those who plough the earth, and work the oxen, and gather the harvests into storehouse or barn. I propose briefly to speak to you upon THE RELATIONS OF AGRICULTURE TO MAN—the connection between husbandry and man as a physical being; its influence on civilization and government;—upon man's intellectual nature, and upon his moral and religious character.

THE RELATIONS OF AGRICULTURE TO MAN PHYSICALLY.

Man is the lord of creation — the last crowning work of his maker—and in the image and likeness of his God was he made; but when, in considering man as the culminating point of creative energy, he who weighs and measures and numbers the stars and follows them in their trackless courses, who calls down the lightnings from heaven and claims them his slaves, and sends them forth on his world-wide errands; who converts the deserts into gardens, covers the earth with cities, and the seas with ships; who delves into the lowest depths of science and soars to the sublimest heights of philosophy and poetry—in considering him thus but little lower than the angels, we must not forget the great fact of his physical existence, of his purely animal nature, which he shares in common with the lowest worm that crawls at his feet; that literally it is true that "all flesh is grass"—that the declaration is, "dust thou art, and unto dust shalt thou return." Considered simply in

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his material nature—produced, nourished and reproduced, as that nature is from the earth and its fruits, man is a part of the earth itself. In common with all other productions, vegetable and animal, he is of the earth, earthy. He has risen from it; he lives upon its all-nourishing bosom, and he returns to it at last. Man in his material nature is simply and only of the products of the soil which he eats, of the air which he breathes, and of the water which he drinks, modified as that combination is in him, as in other animals, by the heat and light of the sun. He is thus brought face to face with dead inert matter, which is his father and mother and brother and sister and child. The rocks of yesterday are in our bones to-day. The iron that tinges the soil to-day will give the color and vitality of our blood to-morrow. The mountain cliffs that are being shattered by the earthquakes or lightning strokes, or disintegrated by the frosts or the rains, will be absorbed by the roots of the growing corn on which we feed, and so moulded into humanity, soon to complete the cycle, by returning back to inorganic matter.

The first and most obvious relation of agriculture to man, then, is that which it sustains to his physical nature. From the products of the earth he supplies his temporal wants, and agriculture is but the art of drawing from the earth its most valuable productions in the greatest abundance. This, then, is man's primary occupation on which depends existence. It is the parent and head of other arts—the highest and noblest of them all. It is true that a few savages might exist upon the spontaneous productions of the soil without its cultivation, but civilized society could not so exist.

Again consider the relation of agriculture to man's physical development and the physical development carries with it intellectual and moral development, for a sound mind is dependent on a healthy body. All life and all character are susceptible of modification, and man's more than all, since it is higher in the scale of creation and has the largest sphere of individual action. The brute cannot be debased or elevated beyond cer-

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tain points, but man may sink below the brute, or rise to the very heavens. What, then, has been the modifying influence by which savages have risen to civilization?—what has made the difference between the Digger Indian of California and the people of New England?—between the Hottentot and the European? There is a natural difference of races, but beyond that agriculture has been the first modifying cause. Civilization must begin in breaking up the sod, planting the seed, and providing better food. It may be unpoetical but it is not unphilosophical to say, that man may be improved physically by improved and abundant food, as much as the strawberries that grow in your gardens, or the cattle in your barns. It is impossible for a man to be good or great with a badly organized brain and a weak or diseased body, and those depend in a measure upon the food we eat. If the Digger Indian subsists on worms and roots he will partake of their nature. If the barbarian feeds upon that which is watery and fibrous, having but little nutriment, he will have no spare vitality, and the brain will remain an undeveloped germ. It is as true of man as of any living thing on the earth, or over or under the earth, that for a full development of his powers he needs abundant and generous food. Our highest type of manhood is in the well fed nobility of Great Britain; physically they have no equals in the world; and we never think of wise and great men only as answering the historical description of Plato, whose body and mind were well developed. So we think of all the world's worthies down to our Washington, and Franklin and Webster. For this perfection of manhood agriculture changes the poisonous South American root to the Chenango or the Jackson white potato; it gives the Baldwin for the crab apple, and the Bartlett for the choke pear; it transforms the small flinty and almost unnutritious Rocky Mountain corn to the golden staple of New England, and the bitter grass seed, which is the parent of the wheat, to the staff of life; while the diminutive sheep and hard sided oxen it has doubled in weight and juiciness and value, in the last two centuries.

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Everywhere it forces the earth to bring forth a hundred fold, so that man, no longer exhausted in obtaining a precarious existence awakes under the stimulus of richer and warmer blood and advances to higher thought and action. The cultivation of any article of human consumption to increase its nutritiousness and its adaptation to the human system, is so much done for the advancement of man; and the introduction and naturalization of useful plants from other lands is so much for the future development of the people at home. Thus we find everywhere that the production and use of wheat indicates the intellectual condition of the nation. It contains more brain-food than other grains. It has been asserted, too, that the use of tea and coffee has increased the average brain of the South of Europe. We may further instance the use of milk, which nourishes brain, and bone and muscle, and which is greatly increased by improved cattle. There is and must be one essential difference, I repeat, between peoples who live on rice, potatoes and water, and those who live on wheat, beef and wine. But agriculture not only gives man higher and better life, but to his own children it gives longer life. "Length of days are in her right hand." This marks its elevated character, for very truly, says Cicero, "by no other way can men approach nearer to the gods than by conferring health on man." "God made the country,—man made the town." The former is in accordance with the laws of nature; the latter is artificial, and to an extent destructive. Agriculture requires labor in variety; it develops all the muscles and brings into play all parts of the human machine, and this labor is not in excess to break down the constitution; hence the larger, taller, better-formed, handsomer men, are from the country, where they have pure air to breathe, simple and pure food to eat, an honest earth under them, and God's sunshine or the magnificence of the star-light heavens above. In the town, idleness on the one hand enervates, and on the other, much toil destroys; men are hived in narrow streets and crowded in tenant houses and close workshops, which beget

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disease and deformity. The country admits of a happy medium—a tranquil, middle life, where there is an abundance for the support of physical nature—thought enough for the maturity of mental powers, and associations that lift the soul heavenward—

> "O he can speak the vigorous joys of health—
> Unclogged the body, unobscured the mind;
> The morning rises gay, with pleasing stealth,
> The temperate evening falls serene and kind."

On the other hand, all things in the city are in extremes—wealth and poverty, luxury and starvation, refinement and barbarian degradation, education that sharpens the wit, and idiotic stupidity that makes man the easy prey of his fellow, who has no more love for his kind than though he had been born of brutes and suckled by she-wolves. On one side religion ends in bigotry, and on the other liberality of opinion in Atheism. Trades, callings, classes, war upon each other, and life is like a great amphitheatre filled with savage beasts and warring men. In body and mind and spirit the equilibrium of humanity is lost, and we are like the waves in a tempest. The physical result is given in the annual vital returns of the State. The average duration of life in Boston is twenty years, and but for the influx from the country its streets would in a few years be deserted, and its houses tenantless. In the country the average of life is more than twice as long. So, we compare the classes and occupations. The life of the farmer is more than sixty years, of shoemakers and ordinary mechanics from forty to fifty years, and of printers, editors, operatives in factories, from thirty to thirty-five years. And here, mark you, that physical inferiority is invariably and quickly followed by mental inferiority. The mind is the measure of the man, it is true; but the body as well represents the character of the mind as the tenement will the tenant who occupies; hence we find that in all powerful nations, physical culture has been the foundation of education. The golden age of Greek history was

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when the youth were trained to manly sports and exercises. Philosophy, poetry, oratory, music and sculpture followed and flourished with the games to which the youth were invited. The Romans adopted the Greek system, and with the same success. Physical health is the chief corner stone of mental power and moral greatness, and that is the product of the farm as much as are sheep and oxen. Having considered the influence of agriculture upon physical man individually, let us look a moment to its relations to man in society—to civilization and to government.

THE RELATIONS OF AGRICULTURE TO CIVILIZATION.

Man's progress in civilization has been and must be through the paths of agriculture; that comes first, as the foundation of society. Manufactures which are a modification of the products of the soil, and commerce which is a distribution or exchange of them, must, in the necessity of the case, be secondary. Land is the chief creative element in society, and arts and trades, navigation and science, will move in unison with agriculture. The most obvious distinction between the savage and civilized man, is in the respective relations in which they stand to the soil. The one has no fixed abode; and as long as he has none he makes no progress; the other attaches himself to a spot which he calls home. This he loves from the associations of the past; it is the place where his fathers lived and died and were buried, or which he has obtained by his own toils. He values it too for the present; it is the home of his wife—it was the birthplace of his children—it is the most loved spot of earth; the stars sparkle brighter above it in the distant spheres, the flowers are more beautiful and fragrant from its soil, the rains are more grateful to its fields, and the fruits sweeter to the taste. Around the house, the barn, the trees, the hills, the running brooks, and the very rocks, pleasant memories and holy affections cluster; and he loves to adorn and beautify and improve it. The very first steps of improve-

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ment, therefore, for an individual or a tribe, is to cease wandering and become rooted to the earth. As soon as a tribe fixes itself with a determination to draw support from the soil, it lays aside its tents and builds substantial dwellings; and here begins architecture and the many arts needed in building—the cutting of timber, the making of bricks, or the hewing of stones—masonry, carpentry, painting, glass making and the countless branches of industry involved in furnishing and beautifying a residence.

Again, before agriculture can progress far, the husbandman must have tools, and to this end the mines must be worked, and the founder and the smith be enlisted; many trades called into existence, and finally, as we see in our day, the highest mechanical ingenuity be pressed into the service of the farmer. Commerce, in the progress of civilization, necessarily grows out of agriculture. A farming community will produce more than they need for cousumption, and the surplus will be sent to less favored localities or to sections and countries whose soil and climate do not admit of such productions. Hence comes commerce, the first born child of agriculture, with the building of ships for the rivers, lakes and oceans—the cutting of canals, and the running of railways over valleys and through mountains for transportation; and then towns and cities spring up full of warehouses, the product of the farm house. And now the farmer and the merchant find it unprofitable and impossible, while actually engaged in other pursuits, to make their own clothes, hats, shoes, and the thousand articles of utility and luxury that become elements of daily life, and manufactures spring into existence. The hand mills, the hand looms, and the spinning wheels by the kitchen fires, give place to great milling establishments and the cotton and woolen factories moved by water or steam; and again, as with the merchant and trader, the manufacturer and operatives are changed from producers to consumers, and the surplus is poured into the lap of commerce, and in the exchange and distribution wealth accumulates, industry is encouraged, knowledge increased, and

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humanity improved. Thus, all the material surroundings of civilization—all that distinguishes our enlightened community from a savage state, are directly the outgrowth of the soil—springing from agriculture, as much as does the farmer's crop that is gathered into the cellar or barn.

THE RELATIONS OF AGRICULTURE TO GOVERNMENT.

Now, let us consider another relation of agriculture to society, in government. The first idea of law is suggested by property; and the first property to be protected by law is in land. To the savage who lives by hunting and fishing, pursuing his game at will over vast territories in common with his wild brethren, the ground is no representative of value. He derives nothing from it, and he claims ownership in it, no more than he does in the sunlight, air or waters. It is when he makes to himself a home, and sets apart a portion of the footstool for himself and his family, baptising it with the sweat of his brow, and sanctifying it with his toil; it is when he has learned to plant it in the spring, and watch the growth of its products in the summer, and gather the harvests in autumn, and enjoy them in winter, that he desires the uninterrupted possession for himself and his children, and sees the value of law to secure the permanent enjoyment of his own—to prevent trespass and thefts, to decide questions of boundaries, and to regulate the relations arising out of the new order of things.

But not only does agriculture inevitably suggest the idea of law, but it favors the highest, freest and most permanent forms of government—always and ever being the enemy of despotism where the husbandman tills his own acres. What of government there is in a savage state, is despotic. One man by superior strength, courage or wisdom, becomes the absolute chief of his tribe. So at the other extreme, we find the tendency in manufacturing and mercantile States, is to aristocracy and monarchy. Great wealth accumulates in the hands of the few; they enjoy learning and luxuries and grow proud, wishing to domineer over the masses whom they employ and

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whose labors they direct. The minority seeks to rule, and often does tyrannize over the majority. But in an agricultural community the doctrine of equality is better exemplified than in any other social condition. The gains of the farmer are slow and sure; he has not enormous wealth to puff him up, and he never can be the victim of abject poverty, which often depresses other classes; his position gives him opportunities for a healthy education, and his absence from the excitements of life allow reflection and mature thought, fitting for self-government. The farmer is independent of all sects in religion, and all parties in politics; he relies on none of them for bread in this life or for hope in another. His own right hand sustains him under the blessing of God, and to God he owes everything; but to gambling politicians and bigoted and proud-souled sectarians he owes nothing. If there is any man who, in such a country as this, is sovereign, independent, lord of himself and his own, it is the farmer who cultivates his own unmortgaged fields, drives his own oxen, owing no man anything.

"Let sailors sing of the windy deep,
  Let soldiers praise their armor,
But in my heart this toast I'll keep—
  The Independent Farmer.
When first the rose in robe of green
  Unfolds its crimson lining,
And round his cottage porch is seen
  The honeysuckle twining;
When banks of bloom their sweetness yield
  To bees that gather honey,
He drives his team across the field,
  Where skies are soft and sunny.

The blackbird clucks behind the plough,
  The quail pipes loud and clearly,
Yon orchard hides behind its bough
  The home he loves so dearly;
The gray old barn doors unfold
  His ample store in measure,
More rich than heaps of hoarded gold,
  A precious, blessed treasure;
While yonder in the porch there stands

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His wife, the lovely charmer!
The sweetest rose on all his lands—
The Independent Farmer.

To him the Spring comes dancingly,
To him the Summer blushes,
The Autumn smiles with yellow ray,
His sleep old Winter hushes.
He cares not how the world may move,
Nor doubts nor fears confound him;
His little flock are linked in love,
And household angels round him;
He trusts to God and loves his wife,
Nor griefs nor ills may harm her;
He's Nature's nobleman in life—
The Independent Farmer."

The isolated life of the farmer as well as his independence of position, begets self-government and cherishes a love therefor. He first has from necessity to rule himself, look after his own family and his little kingdom, where he is patriarch, legislator, judge. Living on his own domains with his pastures, woodlands, hills and streams about him, with his children to be educated, he is supreme in his own little circle. He has none above him but God, and he receives his privileges and his rights from no human hand and hence never learns to look to another man as his superior. When others become his neighbors, they form the township, the county, and the State, continuing the same self-government when they have become an integral part of the great nation. Here is the beauty and perfection of our system of government—we have independent and self-constituted and self-controling circles within the greater circle. The parent has rights that the selectmen of the town may not question; the town has rights that the State may not invade; the State has rights that are beyond the reach of Congress, and which the President cannot disregard without committing treason against the commonwealth, as much as would the State if it should deny the powers that have been ceded to the general government in the constitution.

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All history furnishes illustrations of the truth of our position, that an independent yeomanry is the basis of free institutions. Whenever a people have succeeded in republican forms of government, or in curtailing the sovereign power for any length of time, whether among the vineyards and olive groves of ancient Greece, the mountain homesteads of the Swiss peasantry, or the broad acres of Columbia's virgin soil, or the vast ranches of South America, the majority of the inhabitants have been devoted to agriculture; and it is equally true that the cultivators of the soil have been the most prompt, the most active, and the most enduring in defending their rights and institutions, whether local or national.

THE RELATIONS OF AGRICULTURE TO NATIONS.

It would be an interesting topic, did the time permit, to show the relations of agriculture to nations—to illustrate this fact:—that land and its cultivation are the life powers of nations, which give strength, liberty, wealth and permanence. This is true of the most ancient—it is true of the most modern. As agriculture has been most advanced, civilization has most advanced, and flourishing and stable nationalities have been established. Such is the evidence in the case of China, whose husbandry has attained great perfection, as it must that a third of the whole human race might be fed from its soil. Here is an empire that has lived and flourished ever since the morning of time. History runs not back to its beginnings; and to-day it teems with life, abounds in wealth, and boasts of its philosophy, literature and sciences. Through all the ages agriculture has been most honored by the Chinese. It has been recognized by the sages, patronized by the statesmen, and praised by the poets. Even the Emperor, claiming relationship to the gods, every year comes down from his throne to mingle with the people at their grand agricultural festival, and holds the plough and turns the furrow with his own hands. The Hindoos present another illustration. We find them a polished and refined people, possessing a very perfect system of religion,

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with sages dealing with the most subtle questions of philosophy, having a beneficent code of laws, and skilled in commerce and manufactures, fifteen hundred years before Moses, and more than three thousand years before the Christian era. The antiquity of the people about the Ganges, is settled by astronomical tables that admit of no mistake; and equally well settled is it that this people, who so flourished centuries before the first grey dawn of civilization on Europe, and when America was all unknown, made agriculture, carried to the highest perfection, the basis of all their prosperity. These nations have been invaded and plundered time and again, but have as often renewed themselves from the cultivation of the soil, and still have material and mental greatness. On the other hand the nomadic tribes of Central Asia—the Huns, the Monguls, and the Tartars, who have at different times overrun the world with their fierce warriors, have never been able to form permanent empires.

We come westward, and the same phenomena are presented. Babylonia and Persia, Palestine and Egypt, have risen to power and flourished long, when agriculture was the basis of their civilization; and they have passed away when that ceased to be, or sunk equally with that. Before Greece had risen or Rome dominated over the nations, the law of the Medes and Persians controlled an empire equalling in grandeur any that had gone before or has come since. It covered all of western Asia and included 127 satraps who ruled in the name of one great king. What was the foundation of that power is seen by us in the remains of canals, and reservoirs and aqueducts for irrigation; for Babylonia, wrote Herodotus, more than three thousand years ago, was chiefly watered by irrigation; and he declared it the most fruitful of all countries. For centuries later, the elder Pliny said—"there is not a country in all the East comparable to it in fertility." Some of the most stupendous works that the intellect of man ever devised were there constructed for the irrigation of the soil, in an almost

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rainless region, which, from a desert, was converted into a garden and made to blossom as the rose.

How Agriculture was honored will be seen by one of Xenophan's stories that will be remembered by every school boy. He tells how the Grecian envoy, Lysander, was received by Cyrus the Younger, at Sardis, who pointed out to him the beauty of his plantations, the avenues of trees, the fragrant shrubbery, and the delightful walks of the royal grounds; and when the Spartan warrior, with his native Greek love for art, said—"I admire the beautiful scene, but much more the artist by whose skill it was created." Cyrus, king of all the East replied: "It was laid out and measured by myself, and a portion of the trees planted by my own hands; nor do I ever go to my dinner," he continued, "till I have earned my appetite by some military or agricultural exercise." There was the basis of the Persian empire in agriculture—the employment of kings, and nobles and peasants; and not till great wars occurred, when agriculture was neglected, the husbandman was turned to the soldier, and in oppressive taxation their great works for watering the soil were neglected and went to decay, did the power of the nation cease. Then the drifting sands came to hide the monuments of departed wealth and power and glory, and the places where the olive and the vine grew, and rich luxuriant verdure gladdened the eye, changed to the wild and dreary desert.

Agriculture did the same for Egypt as for Persia. By it she attained the highest civilization and succeeded to the greatest power, long before Grecian art or Roman heroism were known. One of the Egyptian monarchs even changed the bed of the Nile from along the Lybian chain of mountains to the center of the valley, that agriculture might receive its benefits; and it was into Egypt that the roving tribes went for bread, and became tributary therefor, even before the foundations of the Pyramids were laid. With agricultural prosperity came science, arts and industry. "All the learning of the

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Egyptians" comprised at one time all the learning of the world. Into Egypt God sent the miserable nomadic Jews to learn Agriculture, before they could be fitted for the great mission to which they were called. Without that agriculture the little territory of Palestine could never have supported its great population, and the Hebrew nation would not have arisen above the level of their kinsmen, the barbarian Arabs of the south; without that Jerusalem would not have been, the temple and the altar would not have existed; the throne of David at most would have been acknowledged only by roving tribes, and Solomon would have been without the wealth or wisdom of his day.

In the line of great nations Greece followed, whose agriculture was honored, as is evidenced by their festivities and sacred mysteries, and the deification of Ceres, the goddess of agriculture, and of Bacchus, the god of wine. Next came Rome, that owed what she was to Agriculture. Her poets sang the praises of her husbandmen. Vigil, whose poetry revolutionized Roman agriculture, writes thus:

> "Now, O Mæcenus, I begin to sing
> What shall make joyful corn-fields in the spring;
> And tell the husbandmen beneath what sign
> To turn the earth and train the clinging vine;
> What care the oxen and the flocks will please;
> And great experience of the frugal bees."

Her orators, like Cicero, could say—"I have now come to the farmer's life, with which I am exceedingly delighted, and which seems to me to belong especially to the life of a *wise* man." Her statesmen and warriors were as renowned in agriculture as in the Senate and on the battle-field. Cincinnatus, who drove the enemy from the gates of Rome; Paulus Æmilius, whose triumph was graced by the Macedonian king; Scipio, who broke the power of Carthage; Cato, the favorite of the people—the warrior and the statesman, whose writings were authority to the husbandmen of his day—were all practical agriculturists.

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This is the voice of all history, and we hazard nothing in saying that nations have risen universally, as agriculture has been fostered, and fallen as that has declined. There have been short-lived peoples, that with small territories or neglected soils, have for a brief space shone with brilliancy in wealth, luxury and war, but they have soon passed away. The empire of Alexander was like a blazing star, and like a meteor dazzled but for a moment. Tyre, Carthage, Palmyra, are like examples. In more modern times we have had Venice, Florence, Genoa, and Holland, like trees with great tops, but whose roots took little hold of the soil, and hence they soon withered.—Great Britain might be like unto them, but for the fact that the governing classes are attached to the soil, have their homes in the country, live a portion of the year, and rear their children, on their ancestral estates, and are actually the best farmers the world has ever known. At the risk of surprising some who hear me, I assert that agriculture—not her armies, not her wooden walls, not her commerce, and not her manufactures, as vast as they are—has made Great Britain the mighty power, the modern Rome, she is. Her statesmen all see this; and agriculture is the goal to which every professional man and every merchant desires to attain. This was the employment of the good Prince Albert, and it is the favorite pursuit of the nobility. Not there, as is too often the case here, is it the desire of the sons of farmers to hasten from the paternal acres to the city, but the reverse; and the daily prayer is that kind Providence may permit a return to the peace and happiness of rural life.

To-day there are two great races with a future before them, and three great nations of those races, and all they are springs from their attachment to the soil. The Sclavonian race in the Russian empire are in the far East, extending their dominions from the Baltic eastward till they half encircle the globe, and come down to British America in the West, claiming from the Arctic Sea in Europe and Asia and America to boundaries on the south which they are constantly pressing out, looking to

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the Mediterranean in Europe, the Persian gulf in Asia, and to whatever they can get on this continent. Those tribes that advanced westward from Russia in former times, as the Avars and Bulgarians, were nomadic, attached to the soil no further than the breeding of cattle required, and consequently remained barbarian, and soon perished, as in more ancient times the Goths, Vandals and Lombards, who went down upon Rome, were nomades and hunters, and all perished except where agriculture civilized and saved them; but the Sclavonians are agricultural, as the Russians and Poles and other peoples that now form the vast empire which promises to divide the world and give it laws, with the Anglo-Saxons of the west.

The Anglo-Saxons are like them in their estimate of the value and in their uses of land. In the early age in which Tacitus wrote, he said they "shunned the city, and sought their abodes by the sparkling fountains, along the green glades, and in the solemn depths of the forests." The same are they to-day in England and her forty provinces, which make the mother empire so vast that the sun never sets on it—an empire whose morning drum beat and evening guns resound around the world. The same are they in the United States, where the love of the soil has in the life-time of one generation of men pressed us over the Alleghanies, across the broad valley of the Mississippi, and down on the shores of the Pacific—has carried us from the Lake region over the great plains to the Rio Grande, and must soon land us at the Isthmus, in full possession of all the territory to that point, whether we remain one people or a half dozen, for that is our destiny.—What the Anglo-Saxon race north of us does not take of this continent, we of the United States do. It is our natural Anglo-Saxon love for land—"earth-hunger," as Emerson terms it, that makes us the colonizing, civilizing, controlling and dominating race of the West, as Russia is of the East, and that to-day gives us—the Anglo-Saxons—the same position on the globe that the Romans held two thousand years ago.

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Thus far I have treated of the influence of agriculture on man as a physical being and in his material surroundings—upon man in his animal life, on his civilization, and his associations which require commerce, manufactures, laws, nationalities. Now for a few moments I will ask your attention to the relations of agriculture to science and to what pertains to man's mental organization.

I said of the influence of agriculture upon man's material nature, that man was composed of the earth, of the air, of the water, of what surrounded him, of what he received into his system and assimilated with his being. Mentally it is the same. What is the food of the mind, its atmosphere, its earth, and its heaven, give character, bias, direction. As compared with town life, every thing in the country is favorable to strength and vigor of intellect. First is health, second employment; and third the natural and social surroundings.—The town may give quicker growth, for it is the hot bed culture; and it may give more activity and intensity; but it will lack breadth and depth of character. No more will man come to his fulness of stature and strength between brick walls and under the shadow of high buildings in narrow streets, fed on dry goods boxes, stiffened with yard sticks, and bound around with tape, than will a tree in a gravelly road where the sun seldom shines upon it. The place where one lives is not without its effect. A flat country produces flat heads, and a high mountainous country with the free winds upon it, produces lofty and free minds. Society has something to do with the character also; and the industrious and virtuous example of the farmer and his wife upon the son, is very unlike the influence of the streets of the city. Solitude likewise has much to do with character. In the city life is a rush; to the youth it is the morning paper, the school, the noon telegrams, the school again, and the evening paper. There is no cessation—events crowd, and there is little thought. Life is bor-

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rowed; it is artificial; and therefore weak. In the country there is less schooling—thank God for that—and more study; less reading and more reflection—more digestion of what is heard, seen or read, and more appropriation to the life. The sermon of Sunday is food for thought in the field, and in the woods, and in the barn. The newspaper is read to be discussed, and not thrown down to take up another, and another, till the mind, like the drunkard's appetite, is so vitiated that we must have the details of a half dozen battles a day, and delirum intervenes if the telegraph wire breaks for an hour. Now mark the results: the majority of great minds from the beginning of time, have come from rural life. As an illustration: this Republic has never had a President who was not born in the country and brought up on a farm. So it is in every department of business, and in every calling and occupation. The surplus of population—and I am afraid, more than that—flows from the farm to the city. The boy goes pennyless and unknown, and for a time he may scarcely hold his way with his town associates; for it takes him longer to grow, because he has longer to live, and there is more of him! but after a time, inquire whence come the men who are master mechanics, leading manufacturers, rich merchants, who fill the professions and find brains at court houses, State houses, and colleges, and they will tell you of the young men from the hard hills, where their fathers gained a livelihood by hoeing away the rocks, and sent their sons to the town with cowhide shoes, homespun apparel, and their little all of property—a change of clothing, and the Bible that mother gave them—wrapped up in a cotton handkerchief. Thus from the farms, and most of them from poverty, have come up your Webster, Cass, Choate, Douglas, Benton, Calhoun, Silas Wright and Henry Clay—the men who gave dignity to the Senate chamber, and exhibited grace and eloquence and learning before courts and peoples. Thus from the farms have come the philosophers and poets and scholars, who have left names to live; thus the warriors who have fought our battles and written his-

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tory in blood; thus, the merchants who have built cities, covered rivers and lakes with steamers, and sent their ships to every sea; thus, in fine, the men who have given character and tone to the nation.

THE RELATIONS OF AGRICULTURE TO SCIENCE.

The farmers are necessarily the thinking and studying men, for their business involves and demands a greater variety of knowledge, scientific and practical, than any other occupation in which man can engage. Many of the sciences were born on the farm, actually called into existence by the necessity of the husbandman, and their origin was coeval with the first turning of the sod. Astronomy and meteorology, the most ancient and the most useful of sciences, were studied by the shepherds and farmers before Abraham fed his flocks on the plains of Mamre; before Lot, separating from his kinsman, pitched his tent towards Jordan; before Joseph was sold into Egypt, or Moses led the fugitive slaves, 3,000,000 strong, through the Red Sea. They were the study of the Chaldeans, Egyptians, Indians, and Chinese—all agricultural peoples from the remotest antiquity.

A knowledge of the times and seasons, of the rise and fall of the rivers, of the ebb and flow of the tides, of the early and latter rains, of the cycle of the periodical storms, of the formation of the earth and heavens, of the influence of various winds, of the foretelling of the weather by signs in the skies, of the snows, the frosts and the dews—these were all subjects of the closest observation as having an intimate bearing on the labors of the husbandman. The researches of those early nations were carried to an extent that would astonish such as imagine that wisdom is altogether modern.

The science of mechanics was first called into existence as the handmaid of agriculture. The first wheel and axle was used by the farmers of Egypt to raise the waters of the Nile for irrigation. Botany, another name for horticulture, is only

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a branch of agriculture—valuable as it acquaints us with the structure and habits of various plants, and aids in determining what soils to select, and what modes of treatment will be crowned with the most certain success. It has been a study ever since Eve gathered boquets in Eden. Natural history or Zoology which describes the various classes of animals, and tells how they can be made serviceable to man, and how they can be improved, was familiar to Jacob, when he met Rachel by the well of Haran, watering her father's sheep, and before he served Laban for the speckled and spotted cattle. These and other branches of knowledge are the products of agriculture.

But geology, mineralogy and chemistry are the trio of sciences, which at the present day are so intimately connected with agriculture that the latter may almost be considered a fourth science of the same family. Though it can hardly be claimed that they owe their origin to agriculture, yet it is certainly true that the demands it has made upon them have been the strongest incentives to their own progress. Their professors have been spurred on to further investigations and new discoveries in order that they might be fitted to answer the riddles propounded from the farm. The labors of Liebig, Johnston, Miller, Horsford, Hitchcock, and the whole galaxy of scientific lights in the last quarter of a century, have been directed to the elucidation of the great principles that underlie agriculture, and the results of their investigations are as essential to the farmer who would conduct his business understandingly and successfully, as the plough itself.

The farmer of to-day must not only be able to plough his land, but as he does so he must be able to judge of its character, its wants, its susceptibilities. Without waiting a half-dozen years in experimenting, he must be able to decide whether or not it is deficient in some one or more principles which, if added, will adapt it to a given crop. Of the various fertilizers brought to his notice, he must be able to say whether any of them are preferable in cheapness and effectiveness, to the accu-

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mulations of his own barn yard, and which of them possesses the very elements required by his own soil. All the conditions, relations and effects of soils, manures, crops, etc., must be understood by him, as the laws that govern and influence navigation are to the mariner; and it would be as wise in the latter to go to sea without compass or quadrant, chronometer or charts, designing to feel his way—to make his voyage practically instead of trusting to "book learning," as it is for the farmer to go to his business without preparation in knowing the great principles that have governed the world since the new lands first appeared above the waters and gave birth to the grasses, because he will not accept "book farming." To be sure, after all, success must depend on practice; and so it must in law and physic, in divinity and mechanics; but shall we therefore have no schools of instruction in those branches? What is practice but the application of the principles laid down in the books to the details of a business? The New England farmer stands in the same relation to his exhausted lands, that the physician does to his patient, restoring vitality, regulating food and directing employment. We have scientific physicians and quack doctors; and we have scientific farmers and quack farmers. It sometimes happens that the sagacious quack is superior to the theoretrical physician; but it is no wiser to go into farming without knowledge, than it is to expect to be successful in medicine without study. But there is no danger that our young farmers will neglect the acquisition of agricultural knowledge. It is not in the New England mind to see an effect and not inquire into the cause. Our natures revolt at becoming machines, and all employment is without pleasure where we do not understand the operations of the laws that govern it. With that knowledge there is a world of delight in nature. Every stone and every bone and every field and every tree has its story; every flower, every plant, every bird, every animal has its history! and all nature opens to the eye new beauties, as do the heavens to the astronomer. It is to the intelligent farmer that there are "books in

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the running brooks, sermons in stones, and good in everything."

THE RELATIONS OF AGRICULTURE TO MORALS AND RELIGION.

The last topic to which I can briefly refer, is the relation of agriculture to man's religious character and spiritual nature. When God made man he breathed into him a living soul, and placed him in a garden to dress it; and there the voice of God addressed them, in the cool of the day. There was nature in its innocence and simplicity; and there was God in his majesty; they were the father and the child, and nothing intervened. Where else has this been? Where else can it be? We do not forget the theory that God is everywhere and controls all events; but to some His is an invisible presence. The market house, the factory, the caucus room, the dust of the busy streets, aye, the meeting house itself, often stand between God and man, shutting out the light of heaven, and by their noisy bustle and numerous dissipations drowning the divine voice. In the town fashion holds sway, and the masses follow the rich and the great, while Christ walks the street as much a stranger to-day as he was 1800 years ago in the streets of Jerusalem, and in the Temple where the money changers and those that sold and bought had made God's house a house of merchandise. Innocence, truth and sincerity disappear; integrity is governed by statute, law and custom; simplicity is the ridicule of fools; passion is dammed up to the public eye, and let loose with violent impetuosity in private. There is no room for thought, and scarcely an avenue through which an aspiration can go heavenward. So artificial and spiritually depressing is the city that even the Savior of the world went away to pray—he ascended to the mountains, stole away to the fields, or sat by the sea side in solitude, when he would have intercourse with the Father. So all great religious reformers and teachers since him—whether of the Christian faith or any other—as those before him, have left the tumult of the town, the hurry of busy life, and the giddy circles of amusement, when they would

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meditate upon God and escape the mechanical operations of mind that are unavoidable in the crowded places. As the giant of the fable renewed his strength as often as he touched the earth, so man renews his strength of body, and intellect, and spirit, by coming back to the garden where God placed him, and where God converses with him.

Here it is that he feels his dependence upon the Almighty power that sustains him, and from whom he *directly* receives all that he has. In the midst of the great theatre of his works, surrounded by the most striking effects of his wisdom, encompassed on all sides by his bounties and his blessings, God is close to him. Hence David, himself a farmer, while he stood under the clear heavens, inhaling the fresh air of the country, and receiving the genial warmth of the sun, as he looked abroad on nature, exclaims—"Thou makest the outgoings of the morning and the evening to rejoice. Thou visitest the earth and waterest it; thou greatly enrichest it with the river of God, which is full of water; thou preparest them corn, when thou hast so provided for it; thou waterest the ridges thereof abundantly; thou settlest the furrows thereof; thou makest it soft with showers; thou blessest the springing thereof; thou crownest the year with thy goodness, and thy paths drop fatness—they drop upon the pastures of the wilderness, and the little hills rejoice on every side. The pastures are clothed with flocks; the valleys also are covered over with corn; they shout for joy, they sing."

This must be the feeling of every thoughtful mind, as he surveys nature and sees the operations of its laws. He will say—God is here; it is by Him that all things subsist; it is by His agency that life, and beauty, and perfection are everywhere. Every blade of grass; every flower, dressed in colors more gorgeous than Persian purple or Tyrean dyes; every sparrow which, without storehouse or barn, is fed by a paternal kindness, and its fall to the ground known; every tree bearing its fruits; every animal enjoying its life; every rising

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and setting sun invigorating and adorning the earth; every field glistening with sparkling dews or the ripening harvests; every clear sky that smiles above, opening the distant heavens with their everlasting worlds; and every gale that sweeps with its deep tempests over the forests, and hangs its lightning diffusing clouds on the hills and mountains;—all, all announce to the husbandman the presence of God, the Almighty Sovereign, and call forth feelings of gratitude, adoration and praise. If it be true that an undevout astronomer must be mad, more true is it that an undevout farmer is an unthinking and an unintelligent man.

In the city a thought of God is a foreign idea, for except in the heavens we see none of his works as he made them. We talk to each other, not to God; we read the acts of each other, not God's lessons in nature; we live by each other, and do not go to God for original productions; we govern each other by systems of fashion and policy, and are not left alone with the law of God for our rule. Forgive us, therefore, if in our borrowed life, you can say of the city, as Cromwell said of the British Parliament—for years God has not visited that place. But how can we forgive you, children of the soil, living alone with God, walking in his smiling fields and flowery meads, down his verdant lawns, along his water courses that babble as they go, and in his shady groves—the solemn cathedrals of the ancient woods, which we enter with reverential awe—how shall we forgive you, if you do not maintain a high standard of morals, a good degree of personal purity, a patriotism that is akin to religion, and a love of the Most High; and if you do not so instill pious thoughts into the hearts of your children, that when they come to the city, they will renew the life thereof spiritually and morally, as they must physically and intellectually, or we die. To you is given the duty to reinvigorate the race, preserve the national liberties, and protect the ark of the Lord.

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CONCLUSION.

Farmers of Essex county! I have now finished the work you gave me to do. Rapidly I have run over the points most prominent in presenting, as best I might, the Relations of Agriculture to Man. I have attempted to show its worth, its freedom, its intelligence, its dignity, and its purity. I have not given you one word of advice; but impressed as I am with the absolute independence of the farmer, I will not close without urging all whom my voice or words can reach, to stay upon their farms. The tendency of late years has been to rush to the cities, deluded, as the young men and maidens have been, by false ideas of ease, and wealth and pleasures. To all such I repeat my words—stay at home; at home, where your fathers lived, and where their graves are even unto our day; at home, where you were born and your earliest loves were cherished; at home, amid the scenes upon which your childhood gazed in gladness, and where, in the most distant land to which you may wander, you will at last wish to lie down and die. If you want wealth, seek it there. Agriculture may be a slow mode, but it is sure. California with its mines of gold, and Nevada with its soil cropping out with silver, do not enrich so many relatively as do the bleak hills of New Hampshire, the sheep pastures of Vermont, and the deep forests of Maine. The few succeed, the many perish. Be ye not deceived either, in the great gains of successful merchants and manufacturers; men like the Lawrences, Astors, and Girards, who own factories, and ships, and houses, and stocks—whose stores, filled with goods, amaze us; whose palatial palaces delight our eyes, and whose generosity sometimes surprises the world. Remember that where there is one millionaire, one merchant prince, there are scores who are prematurely old with hard labor and excessive cares, while all their hopes have fled through the courts of bankruptcy. The few, who loom up in the distance, are as beacons upon a dangerous coast everywhere strewn with wrecks. You deceive yourselves, too, if you dream of more

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pleasure in the trades and professions, less labor, or fewer anxieties, than on the farms.

Over all the rest of the world the husbandman has one sure advantage—he can have a sufficiency for the supply of his real wants, if not an abundance of wealth. The sun will rise on his corn as well as on his richer neighbors; the rain will come for his pastures as much as though his cellar was full of gold; if he labors, he will have something to eat. There is none of that squalid poverty in the country that crowds the lanes and alleys of the town. If worst comes to worst, the farmer may live upon the fruits of his own acres, and nobody can starve him; nobody can make him afraid. Politics may change and statesmen go up or down; creeds may pass away, or keep churches wrangling and old ladies quarreling; storms may sweep the seas and bury the hopes of merchants in their deep waves; tariffs may be made or unmade to the alarm of manufacturers; and financial revulsions may shake tradesmen and bankers, but the farmer remains lord of himself, king of his own household, ruler of his own acres, disposer of his own sheep and cattle. He calls no man master; none may control his action; none govern his vote; none dictate his creed; none tell him what he shall think, how he shall dress, what shall be the cut of his cloth or the fashion of his boots. Oh, the glorious independence of the man who lives on his own earth, which he owns from the centre of the globe to the high heavens; who can snap his fingers in the face of the world and feel that he is himself, and the equal of any other man, to whom he can say as Black Hawk, the Indian chief, said to General Jackson—"You are one man and I am another man." Not Napoleon himself, whose nod makes the nations bend, is more a man than the free, intelligent, independent American farmer. Not the Czar of all the Russias; not prophet or prince, not lordling by birth, a Jew in wealth, is more independent than he. He labors, it is true, but his is a noble labor that makes the world richer and better, holier and happier. It is not the slavery of the South that knows a master and a lash;

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it is not the serfage of the East that knocks at the door of the noble born; it is not the cringing of political aspirants who sell their manhood for place and live in fear of their own shadows —far less than shadows are they; it is not the subserviency of wealth to power, which debases itself that it may retain and gather more wealth; it is not the submission of professional life, that asks where one shall go to church to win favor and patronage, or of trade that whines behind a counter measuring ribbon, with simpering words and less than womanly weakness—no! no! it is none of these, but that strong, muscular, healthy, joyous manhood which comes alone from God to uncontaminated man in his original employment; that conscious dignity of one's own selfhood, that all men love, and which is more valuable than life itself. Young men of the farms, maidens of the country, children of the plough, everywhere can ye be, and everywhere should ye be yourselves; free to think, to will, to do. This is your glorious privilege; maintain it, and then you will continue, as you have ever been, the hope and stay of the world. But when the yeomanry of a country become servile and corrupt, there is no longer hope of that land. Cling, therefore, to your farms, and gird yourselves for manly labor, and God be with and bless the American farmer.

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REPORTS, &c.

PLOUGHING—WITH DOUBLE TEAMS.

The Committee on Ploughing with Double Teams have attended to the duty assigned them, and report that ten teams entered and ploughed. One team with the Michigan, the others with the common plough.

We are unanimous in recommending the award of the first premium, of $7, for Michigan plough, to Messrs. Barker and Foster, of North Andover.

Common plough—first premium, of $10, to A. P. Fuller, of North Andover; time, 37 minutes, with Lion plough, No. 61.

Second premium, of $9, to Messrs. Poor & Winship, of West Newbury; work done in 54 minutes, with Prouty & Mears plough, No. 155.

Third premium, of $8, to D. L. Goodrich, of West Newbury; time, 40 minutes, with Eagle plough, No. 50.

Fourth premium, of $7, to Alley and Carey, of Marblehead; time, 45 minutes, with Lion plough, No. 61.

Fifth premium, of $6, to Jaques and Bray, of Newbury; time, 36 minutes, Eagle plough, No. 20.

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Sixth premium, of $5, to Joseph Goodrich, of West Newbury; time, 64 minutes, Prouty & Mears plough, No. 155.

The Committee are also unanimous in the opinion that the land is the most miserable that they ever saw ploughmen and ploughs exhibited upon, and think the thanks of the Society and the owner of the land are due the ploughmen for their patience and perseverance in the work.

HORACE WARE,
PAUL D. PATCH,
EDMUND LITTLE,
LUTHER NOYES,
DANIEL CARLTON,
} COMMITTEE

PLOUGHING — WITH SINGLE TEAMS.

The Committe on Single Teams report:—

There were six teams entered for premiums, but five, however, appeared on the ground.

The Committee would recommend the

1st premium, of $7, to Richard T. Jaques, Newbury.
2d " $6, to Andrew Smith, Marblehead.
3d " $5, to John Reynolds, No. Andover.
4th " $4, to Wm. H. Walcott, Danvers.

JOSEPH HOW,
SAMUEL ADAMS,
MARSHAL C. ADAMS,
PAUL TITCOMB,
} COMMITTEE.

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PLOUGHING — WITH HORSES.

The Committee on Ploughing with Horses report as follows:

The 2d premium, of $7, to Spofford and Adams of Georgetown.

FRANCIS DODGE,
WM. GOODRICH,
S. A. MERRILL,
GEO. HOSAM,
JOS. P. FOLSOM,
} COMMITTEE.

WORKING OXEN.

The number of pairs of oxen entered for premium was large, being sixteen; of this number three pairs were rejected by your Committee, on account of age, they deeming it a part of their duty to look to this, as well as other matters in relation to this class of animals, in compliance with the rules of the Society.

Two pairs were not presented for trial, this leaving but eleven pairs to compete for the premiums offered by the Society. Of this number, six came under class No. 1, weighing over 3,000 lbs., and five under class No. 2, weighing less than 3,000 lbs.

The trial was creditable to all, and by most the work was admirably performed; showing not only real merit in the teams, but exceedingly good training by the teamsters; and your Committee regret that there were not more awards at their disposal, yet, each member of it, at the conclusion of the trial, had noted his perference, on comparing which were found to be on the same pairs. We therefore were unanimous in awarding the premiums as follows:—

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CLASS NO. I.

To Moses Hall Poor of West Newbury, 1st premium, $10
To Samuel Longfellow of Newbury, 2d premium, $8

CLASS NO. II.

To A. P. Fuller of North Andover, 1st premium, $10
To Joel Wilkins of Danvers, 2d premium, $8

JOSEPH NEWELL,
JEDEDIAH H. BARKER,
CALEB CHILDS,
S. B. SWAN,
E. H. LITTLE,
} COMMITTEE.

FARM AND DRAFT HORSES.

The Committee on Farm and Draft Horses report six entries in this department for premiums. Only five of which appeared on the ground as competitors.

The premiums are awarded as follows, viz :—

To John Perkins of South Danvers, the 1st premium, of $8.

To T. Payson Milton of Rowley, the 2d premium, of $6.

Respectfully submitted for the Committee.

LEWIS ALLEN.

STALLIONS.

The Committee on Stallions would make the following report :—

For stallions four years old and upwards—1st premium to

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George B. Loring of Salem, for his stallion "Doncaster," seven years old, sired by "Trotting Childers," $10.

For stallions under four years of age—1st premiun to L. P. Demsey of Danvers, for his three year old stallion $7.

LAMBERT MAYNARD,
C. H. GOULD,
SETH KIMBALL,
M. A. SHACKLEY,
} COMMITTEE.

BREEDING MARES.

The Committee on Brood Mares, having carefully examined the same, make the following report:—

There were eight entries for premiums, and we have awarded the premiums in the following manner:—

The 1st premium, of $10, to Richard S. Rogers of Salem, for his Black Hawk mare.

The 2d premium, of $8, to Joseph B. Spiller of Haverhill.

The 3d premium, of $6, to George O. Stevens of North Andover.

I. OSGOOD LORING,
For the Committee.

COLTS.

The Committee on Colts, having carefully examined the same, report as follows:—

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FOUR YEARS OLD.

1st premium, of $7, to George B. Loring of Salem, for his black colt.

2d premium, of $5, to Nathaniel Little, Jr., of Newbury, for his bay colt.

THREE YEARS OLD.

1st premium, of $6, to John Dorman of Georgetown, for his brown filly.

2d premium, of $4, to John Swinerton of Danvers, for his black filly.

TWO YEARS OLD.

1st premium, of $5, to Fitch Barteaux of Methuen, for black colt.

2d premium, of $3, to L. F. Carter of Georgetown, for bay filly.

THOMAS SANDERS,
JONATHAN BERRY,
IRA P. POPE,
SAMUEL MOODY,
} COMMITTEE.

FAT CATTLE.

The Committee on Fat Cattle report five pairs of oxen and one single ox entered for premiums.

After careful examination, they have awarded the Society's premiums as follows :—

1st premium to Joseph Kittredge of North Andover, for his single ox, $10.

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2d premium to Amos M. Follansbee of West Newbury, for his near ox, $8.

3d premium to Daniel Carlton of North Andover, for his near ox, $5.

OTIS BAILEY,
ARIEL H. GOULD,
T. G. ORDWAY,
JOHN J. GOULD,
DAVEIL S.TENNY,
} COMMITTEE.

BULLS.

The Committee on Bulls submit the following report. There were three Jersey bulls exhibited.

We award the 1st premium, of $10, to Richard S. Rogers of South Danvers, for his yearling bull, "Little Mac."

We would make honorable mention of the bull exhibited by Mr. Payson of Rowley.

Mr. Batchelder of Wenham, did not give the pedigree of his animal, as the rules of the Society require.

They award the 1st premium, of $10, to Geo. B. Loring of Salem, for the best Ayrshire bull.

The bulls exhibited by Moses Newell of West Newbury, and Eben S. Poor of South Danvers, would have given more credit to their owners, and to the Society, if they had been better fed, and taken care of during the Summer. We are aware that it is our duty to give the premiums to the best animals, and not to those that have had the best care taken of them; but it is not good husbandry to neglect good animals, and we feel that the object of the Society is promoted by encouraging the farmers to take good care of their stock, as much as it is by inducing them to get good animals.

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They award the 1st premium, of $10, to Charles Harriman of Groveland, for his five year old Devon bull.

They award to Nathaniel Little, Jr., of Newbury, for his Grade bull, the 1st premium, of $10.

To Oliver P. Kilham of Boxford, the 2d premium, of $5, for his native yearling bull.

They award the 3d premium, of "Flint's Book on the Dairy," to Richard Little of Salisbury, for his Grade bull.

We would make honorable mention of the bulls exhibited by Wm. Foster, J. H. Reynolds, and Henry Hill of North Andover.

We would here call the attention of those to whom we have awarded the premiums, to the rules of the Society, that require a certificate to be filed with the Treasurer before the premium is paid.

WM. R. PUTNAM,
ABIEL WILSON,
D. .L GOODRICH,
CHAS. A. HARRIMAN,
} COMMITTEE.

MILCH COWS.

The Committee on Milch Cows report:—

There were six Native and Grade Cows entered for premium. We award to

Joseph Newell, West Newbury, 1st premium, $10.

Jacob F. Jewett, Georgetown, 2d premium, $5.

E. S. Parker, Groveland, 3d premium, "Flint's Book on the Dairy."

Warren Averill, Ipswich, exhibited a very good Native Cow, eight years old, but his statement did not come quite up to the

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requirements of the Society, therefore the Committee did not feel at liberty to award him a premium. They recommend Mr. Averill a gratuity of "Flint's Book on the Dairy."

HENRY A. KING,
For the Committee.

STATEMENT OF JOSEPH NEWELL.

To the Committee on Milch Cows:—

I offer for premium "Daisy," a cow from Ayrshire and Short Horn stock, eight years old. Her last calf was dropped on the 9th day of March, and is to calve again the 1st of March, 1863.

The quantity of milk given by her for the time designated, is as below given. She will vary but a small quantity from this amount from the time of calving, till the present, on the same keeping, which has been on pasture feed alone since the 1st of May. I consider her equally good for a stock cow as for milk; for specimens I would refer you to the yearling heifer "Minna," and also a red and white steer, two years old, entered for premium to-day by me.

The amount of milk given by her for the first ten days in June averaged 35 pounds per day; first ten days in September averaged 30 pounds per day.

JOSEPH NEWELL.

Brook Dale Farm, W. Newbury, Sept. 30, 1862.

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STATEMENT OF JACOB F. JEWETT.

Entered September 22d, 1862, one Native Cow, seven years old last May. Had her first calf in May, 1857. Has had six calves. Has not been dry since she had her first calf.

In February, 1861, I made 11 pounds of butter in one week, besides using one quart per day of the milk. The first ten days in June she averaged 22 pounds of milk per day; the first ten days in September she averaged 17½ pounds. She calved this year January 22d; next year she comes in January 3d.

After she calved, in January, till June 1st, she had four quarts of fine feed per day, and salt, and some hay. She makes butter of the very best quality. She has run in quite a poor pasture this summer. She is handy to work in a cart as an ox or horse.

JACOB F. JEWETT, Georgetown.

STATEMENT OF E. S. PARKER.

To the Committee on Milch Cows:—

The white faced cow I offer for premium is six years old. I have owned her three years; her breed is native or unkown. The first ten days in June she gave milk as follows:—

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June	1	Morning,	4	quarts.	Evening,	3	quarts.
"	2	"	4	"	"	3	"
"	3	"	4	"	"	3	"
"	4	"	3 1-2	"	"	3	"
"	5	"	4	"	"	3	"
"	6	"	4	"	"	2 1-2	"
"	7	"	3	"	"	2	"
"	8	"	3	"	"	2	"
"	9	"	3	"	"	2	"
"	10	"	3	"	"	1	"
Total,			35 1-2			24 1-2	

She had then been giving milk over thirteen months. She dried the 1st of July, and the 12th of July dropped her calf. She is not with calf now.

She gave more than 10 quarts of milk per day for one hundred days, in 1861. Her milk is very rich; 1 quart weighs 2 pounds 10 ounces.

The first ten days in September she gave milk as follows:—

Sept.	1	Morning,	8	quarts.	Evening,	8	quarts.
"	2	"	8	"	"	8	"
"	3	"	8	"	"	8	"
"	4	"	8	"	"	8	"
"	5	"	8	"	"	8	"
"	6	"	7	"	"	7	"
"	7	"	7	"	"	7	"
"	8	"	7	"	"	7	"
"	9	"	7	"	"	7	"
"	10	"	7	"	"	7	"
Total.			75			75	

She is now giving 14 quarts per day. I consider her a perfect cow.

Last winter her feed was second crop until spring, then a quart of meal per day; through the last summer, common

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pasture until August, then corn fodder, and now a few pumpkins.

E. S. PARKER.

Groveland, Sept. 29, 1862.

STATEMENT OF WARREN AVERILL.

To the Committee on Milch Cows:—

Gentlemen—The cow I offer for premium is eight years old, and Native breed. She calved the 10th day of March last, and is now with calf again. Before going to pasture, and after the calf was taken from her, she gave from 16 to 17 quarts of milk per day; once a day she had chopped feed with meal and shorts, some days a few potatoes, balance hay. After going to pasture a few days, I commenced milking three times a day. In the morning she would give 9 quarts, at noon, 6, and about the same at night, varying a little, of course, from this, but from 20 to 21 quarts until the 1st of July. I did not keep a daily account of her milk; for I had no idea of sending her here to this show. After this she gradually fell away in her milk. In August, the latter part, she gave 18 quarts a day, and now she gives 14 quarts a day. She has had but one pasture through the season, and that has been good, until the month past rather dry, so I fed her at the barn at night. She has had one quart of meal every night, which I think essential to keep up her flesh; as without it, giving so much milk would cause her to fall away in flesh.

Her butter was weighed every time we churned, in 1-2 pound balls. From the 20th of May to the past week she made 192 pounds, besides supplying my own and one of my

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neighbor's families with all the milk wanted, the exact amount I cannot tell—three pints every day, and sometimes one gallon. Four days in June we tried to see what she would do in making butter, and the result was 9 3-4 pounds in the four days; but I suppose it would have weighed 10 pounds if it had all been weighed together.

I am very confident she will make in one hundred days 200 pounds of butter, and not force her in keeping her high.

WARREN AVERILL.

Ipswich, Sept. 29, 1862.

STEERS.

The Committee make the following report:—

THREE YEARS OLD.

1st premium, of $6, to Dean Robinson of West Newbury.
2d premium, of $5, to Alfred Little of Newbury.

TWO YEARS OLD.

1st premium, of $5, to C. W. Hatch of West Haverhill.
2d premium, of $4, to Joseph Newell of West Newbury.

YEARLINGS.

Premium, of $3, to Gibeon Adams of Newbury.

CHARLES ROGERS,
CHAS. S. SPOFFORD,
PAUL D. PATCH,
EBEN KING,
} COMMITTEE.

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HEIFERS.

The Committee on Heifers would submit the following report:—

There were entered for premium but one three year old heifer, four two year old heifers, seventeen yearlings, and two lots of calves—four in each lot. There were also several heifers upon the ground not entered, and some single calves, which, by the rules of the Society, were not allowed to compete for premiums. One of them, a two year old heifer, in milk, belonging to J. P. Jones of Georgetown, was very likely, and we recommend a premium of $5.

The Committee consider Mr. E. S. Parker's mottled Grade, three-year old heifer well worthy of the 1st premium, of $7.

We award to J. Longfellow of Byfield, for his two-year old heifer, the 1st premium, of $5.

To Charles Harriman of Groveland, the 2d premium, of $4, for his Devon Heifer.

To E. S. Parker of Groveland, the 3d premium, of "Flint's Book on the Dairy," for his Grade Heifer.

We found much difficulty in deciding the superior merits of the seventeen yearling heifers, as all were good, and we should have been glad to have had more premiums to dispose of, but finally awarded the 1st premium, of $4, to Theron Johnson of North Andover, for his Grade Heifer, and the 2d premium, of $3, to Joseph Newell of West Newbury, for his Grade yearling, and the 3d premium, of "Flint's Book on the Dairy," to Eben S. Poor of South Danvers, for his Ayrshire Heifer.

We would also award to J. Longfellow of Byfield, the 1st premium, of $5, for his superior lot of calves, and to Chas. Harriman of Groveland, the 2d premium, of $3, for his lot of calves.

BENJ. P. WARE,
RICHARD S. BRAY,
JONAS HOLT,
} Committee.

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STATEMENT OF E. S. PARKER.

To the Committee on Three-Year old Heifers:—

The mottled heifer I offer for premium is half Jersey—three years old last January. She has had three calves—will have her next in April; so that when she is four years and four months old she will have had four calves.

She gives excellent milk, but not in great quantities. She calved the 12th day of last June. The calf was killed when three days old. She has had only common pasture feed through the summer. She gave during the last fifteen days of June, 250 quarts of milk. She is now giving 10 quarts per day.

Groveland, Sept. 29, 1862.

SWINE.

The Committee on Swine would award for

BOARS.

The 2d premium, of $3, to Byron Goodell, South Danvers.

BREEDING SOWS.

The 1st premium, of $5, to David Carlton, N. Andover.
The 2d, premium, of $3, to William Foster, N. Andover.

WEANED PIGS.

The 1st premium, of $5, to William Foster, N. Andover.
The 2d premium, of $3, to Byron Goodell, South Danvers.

PAUL TITCOMB, for the Committee.

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SHEEP.

The branch of agriculture, which has been referred to this Committee, is one which has, within the last few months, increased very materially in importance, and has attracted unusual attention. The production of wool has become a matter of vital interest to our community. The suddenly increased demand for woolen goods, and the difficulties of various kinds which lie in the way of their importation, have enhanced the value of sheep of every description. And while we are still discussing the question of what kind of sheep—the smaller, fine-woolled breeds, or the heavy, coarse-woolled mutton sheep —is the most desirable, one point is clearly established ; that the sheep is a most profitable animal, and that sheep husbandry is a very important part of the business of farming.

The decline of sheep husbandry in Massachusetts is remarkable, and, to some extent, unaccountable. By some it has been attributed to the introduction of fine-woolled blood, imported into the State in 1809–10 and 11. But it can hardly be supposed that what has been found so advantageous in other States, should have been so disastrous here. It is more probable, that as agriculture was superseded in Massachusetts, and farms began to be neglected, sheep were the first animals to feel the effects of the neglect. It is well known that the value of the animal, both for wool and mutton, was very much reduced, even before the number was diminished. The weight of the carcass was small, and the clip of wool was brought to a very low average. In twenty years, from 1840 to 1860, the decrease in the number of sheep was more than 250,000—and in the latter year the whole number was but little more than 100,000 in our whole Commonwealth ; and in 1850 of the 22,000,000 pounds of wool consumed here, less than 600,000 pounds was raised in the State. Meanwhile New York contained 5,118,777 sheep, and Virginia, 1,293,772; and England had increased her number to over 50,000,000.

There is no reason that Massachusetts and some other parts

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of New England should show so little attention to the branch of agriculture which we are considering. The soil and climate are just as well adapted to it, as are those of any other portion of the Continent; and there is abundant evidence that the wealth of our State, and of our own county, can be materially increased by the introduction of suitable flocks upon our pastures.

In attempting to decide what flocks are suitable, we should bear in mind the circumstances of soil and climate by which we are surrounded. Our pastures are not luxuriant. Our climate is somewhat severe. Neither the grazing of summer, nor the usual quality of food in winter is conducive to large animal growth.

Keeping this in mind, we may consider with some benefit the various breeds of sheep, the objects for which they are kept, and their management. And first, of the mutton sheep of England.

One great object of English agriculture is to furnish animal food for the population of the kingdom, at as cheap a rate as possible; and to no one branch of animal breeding for this purpose has the English farmer applied himself with more skill and success than to the production of mutton. Various breeds of sheep, each adapted to the locality in which it is found, are scattered over the kingdom, supplying food, of a most nutritious and economical quality, to all classes of the inhabitants. Mutton is said to be the cheapest animal food that the farmer there can produce. The domestic consumption is very great. Every edible portion of the animal finds a ready market. The hind-quarters and saddle constitute a luxury for the rich; and the fore-quarters supply the poor with food at the most reasonable prices. In order to meet the demand which exists there, great care has been taken in the selection of animals for breeding purposes; and Mr. John Ellman, with his South Downs, and Mr. Bakewell, and Mr. Cully, with their Leicesters, are looked upon as the benefactors of England—while every farmer who cultivates his turnips, and improves his pastures, for the feeding of sheep finds that his labor meets with ample reward.

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The soil and climate and agricultural system of England are admirably adapted to this business. The mild and humid atmosphere, and the equability of the temperature, encourage the growth of the animal, and enable it to arrive at early maturity; at the same time the fleece has a tendency to increase in length and coarseness. The luxuriant pastures, also, afford suitable food for animals whose heavy carcases require abundant nourishment. The ease with which root crops, especially turnips, are raised on English soil, combined with the possibility of feeding such crops on the land, during the mild winters of that island, enables the English farmer to support his sheep with great economy during the cold season. All this produces a sheep, which when brought to the stall is in a condition to take on fat rapidly, and to remunerate the feeder.

It is not surprising that the same system of husbandry, which developed and required short horns among horned cattle, should also develop and require Leicester, Cotswolds, Oxford Downs, Shropshires, and South Downs among sheep—of the first of which (the Leicester) Mr. Webster says—"They must be kept well; they should always be fat; and pressed, by good keeping, to early maturity, they are found very profitable." When we read of Leicesters weighing from thirty to forty pounds to the quarter, at two years old, of Cotswolds weighing nearly 400 pounds, of New Oxfordshire ewes weighing over 200 pounds, of Oxford Downs weighing 360 pounds, we should bear in mind that these animals have received English feeding, mostly on English soil, and under an English sky. It is not impossible to do this in our own State, and our own county, as the Cotswolds exhibited by Mr. Corliss, and the Oxford Downs exhibited by Mr. Fay will testify.

It is unnecessary to describe the breeds mentioned above; their history and qualities being well known to all who are interested in sheep husbandry. Most of them are prolific and supply the breeder with an abundance of lambs for market, if he desires it. Such facts as can be obtained with regard to their products in mutton and wool may not be uninteresting.

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Oxford Downs are sent to market at fourteen months old, weighing 80 pounds, and shearing from 7 to 10 pounds of wool. Mr. Grennell in his Report on Sheep Husbandry to the Massachusetts Board of Agriculture, gives the weight of Mr. Fay's Oxford Down ewes from 150 to 180 pounds, of a ram in the same flock, 360 pounds, and of lambs five or six months old, 100 pounds.

Shropshire Downs are said to dress from 25 to 30 pounds per quarter, and to shear from 5½ to 7 pounds of wool. It is said of them that "for early maturity, and weight of carcass and wool, with the least amount of food, I believe they are not to be surpassed by any breed, especially if their non-liability to disease, and their fecundity, be duly taken into consideration."

Cotswolds, at two years old, are made to weigh 35 pounds to the quarter; and it is said that a ram of this breed has sheared 17 pounds of "good coarse wool."

South Down wethers, at two years old, weigh from 85 to 125 pounds, making "more internal fat than others, and on this account being favorites with the butcher." The average weight of their fleeces in England is 3 pounds—in this country it is said to be 4 pounds.

Leicesters, at two years old, weigh from 25 to 35 pounds to the quarter, having such a preponderance of external fat over internal, that while the London butchers show the inside of the Down sheep, they hang the Leicesters with the back out. The Leicesters yield about 7 pounds of somewhat inferior wool.

There seem to be no data given for obtaining the comparative cost of the wool and mutton of these various breeds; and considering the differences in the cost of food, of pasturage, &c., which exist in various localities, perhaps any exact calculation is impossible. We can only say of them, that they form a part of agricultural industry, in that country where the most careful experiments have been made in the art of farming, and where the business of farming is brought within profitable rules.

There is, however, a kind of sheep husbandry practiced in less cultivated regions, which is worthy of notice. While the

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English farmer is engaged in the production of those heavy breeds, to which we have referred, as best adapted to his soil, and climate, and market, his neighbors, both near and remote, are occupied with a very different business.

In the mountains of Westmoreland, Lancashire, and Northumberland, and throughout Scotland, the Black-Faced Heath sheep roam over the cold, bleak pastures, whose variety and sweetness of herbage, though it is short, gives peculiar delicacy of flavor to the mutton, and whose climate gives these sheep great hardiness and endurance. They are the *short* sheep of Scotland, in contradistinction to the Cheviot, or *long* sheep—a distinction upon which Scott and the Ettrick Shepherd had their famous discussion. In form they are short, round, firm and handsome. Their weight is from 16 to 20 pounds per quaater; and their yield is about 5 pounds of long, coarse, shaggy wool.

In the more fertile and better cultivated portions of this district, the Cheirot, a larger sheep, is increasing in numbers very rapidly. These sheep are found, not only upon the high hills of Cumberland, Galloway, and Westmoreland, from which they take their name, but they are very generally kept in most parts of Scotland. They are peculiarly adapted to the rough, cold region which they inhabit. Their legs are long and strong, fitting them for travelling through bogs and snow; their quarters are strong and very evenly balanced; their fleece is close, compact and fine; and their forms are straight, round, and well proportioned. Their weight, under ordinary circumstances, is from 12 to 18 pounds per quarter; and under extraordinary feeding and care they reach 30 and 32 pounds per quarter.

In Wales, a "small, short, knotty sheep" is found, kept in large flocks, and exposed to much hardship. They weigh about 10 pounds per quarter, and their mutton is very highly esteemed.

In Ireland, a coarse, heavy, misshapen sheep, which attained a large size upon the rich pastures of that island, has been much

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improved by the introduction of blood from some of the best breeds in England.

On the Continent of Europe, many varieties of sheep are found—taking their name from the countries in which they are fed. They are managed in a somewhat primitive and pastoral manner, as are the sheep of Scotland, Ireland and Wales, to which we have just referred; and, as they are chiefly kept for their wool, some knowledge of their quality and habits may be interesting to those who believe in the profits of this important article.

The most universally diffused of these breeds is the Spanish Merino. These sheep seem to have been known at a very early period, and were originally of several varieties, whose fleeces differed in color and quality. The finest were the Andalusians, descended from the Tarentine breed of Italy, which were brought into Spain in A. D. 41 by Columella, and mixed with some valuable and beautiful African rams. From this time to the Thirteenth Century, wool growing and woolen manufactures increased largely in Spain; and there were at one time in Seville alone 10,000 looms, whose fine fabrics were exported to all parts of Europe as well as to Africa, and were a source of much national wealth. During the reigns of Ferdinand V. and Philip III. nearly a million of the woolen weavers were driven from Spain, and manufactures declined; but the farmers still fed their flocks, the blood of which they preserved with great care.

The Merinos, which constitute nearly all the sheep of Spain, are divided into those which are confined to one district, and those which migrate from pasture to pasture as the seasons change.

The following interesting narrative of incidents connected with the annual peregrinations of these sheep is from Mr. Youatt's work:—

"They are divided into flocks, each of which is placed under the care of a *mayoral*, or chief shepherd, who has a sufficient number of others under his command, with their dogs. He uniformly precedes the flock, and directs the length and speed

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of the journey; the others with their dogs follow, and flank the cavalcade, collect the stragglers, and keep off the wolves, who regularly follow at a distance and migrate with the flock. A few asses or mules accompany the procession, in order to carry the little clothing and other necessaries of the shepherds, and the materials for the fold at night. Several of the sheep, principally wethers, are perfectly tamed, and taught to obey the signals of the shepherds. These follow the leading shepherd, having been accustomed to be fed from his hand; they lead the flock—there is no driving—and the rest quietly follow.

"When passing through the enclosures, they sometimes travel eighteen or twenty miles a day; but when they reach an open country, with good pasture, they proceed more leisurely. Their whole journey is usually more than four hundred miles, which they usually accomplish in six weeks, and thus spend, in going and returning, nearly one-quarter of the year in this injurious manner.

"The shepherds and the sheep equally know when the procession has arrived at the point of its destination. It is necessary to exert great vigilance over the flock during the last three or four days, for the animals are eager to start away, and often great numbers of them make their escape. If they are not destroyed by the wolves, there is no great danger of losing them; for they are found on their old pasture, quietly waiting the arrival of their companions, and it would be difficult to make any of them proceed a great way beyond this spot. The shepherds are immediately employed in constructing pens for the protection of the sheep during the night, and which are composed of ropes made by twisting certain rushes together, which grow plentifully there, and attaching them to stakes driven into the ground. They next build, with branches of trees roughly hewn, rude huts for themselves.

"When the sheep arrive at their summer pasture, which at first is very luxuriant, the *mayoral* endeavors to guard against the possible ill effects of the change from the uncertain and scanty pasturage found on the journey, by giving the flocks a

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considerable quantity of salt. He places a great many flat stones five or six feet from each other, and strews salt upon them, which is eagerly devoured. This is repeated on several successive days; *and a case of general inflammation, or hoove, seldom occurs.*

"It is supposed that forty or fifty thousand men are employed in these peregrinations of the sheep. They are a singular race of men, enthusiastically attached to their profession, rarely quitting it, even for a more lucrative one, and rarely marrying. The number of dogs kept for the purpose of guarding the sheep exceeds thirty thousand.

"The shearing does not delay the flock more than a day. Buildings are erected at various places in the early portion of their journey; they are very simply constructed, and consist only of two large rooms, each of which will contain more than a thousand sheep; there is also a narrow, low, long hut adjoining, termed the *sweating house.* The sheep are all driven into one of these apartments, and in the evening those intended to be shorn on the following day are transferred into the low, long hut. As many are forced into it as it will possibly hold, and there they are left during the night. As some are liberated in the morning, the others are urged towards the end of the hut, while more from the apartment occpy their situation. In consequence of this close confinement they are thrown into a state of great perspiration; the yolk, which formed a somewhat hard crust on the fleece, is melted, and thus the whole is rendered softer, and is more easily cut. There is no previous washing, nor any other preparation for the shearing. From 150 to 200 shearers are generally collected, and a flock of a thousand sheep is disposed of in a day, although five rams or eight ewes are reckoned a good day's work for a Spanish shearer! The sheep are turned back as they are shorn into the second apartment, and on the following day continue their journey; thus in the space of six days, as many flocks, each consisting of a thousand sheep, pass through the *esquilo* (shearing hut), and leave their fleeces behind them. The wool is

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then cleansed with water and soap and sorted in the *esquilo*, and is ready for sale."

"The first impression made by the Merino sheep on one unacquainted with its value would be unfavorable. The wool lying thicker and closer over the body than in most other breeds of sheep, and being abundant in yolk, is covered with a dirty crust, often full of crocks. The legs are rather long, yet small in the bone; the breast and the back are narrow, and the sides somewhat flat; the shoulders and bosoms are heavy, and too much of their weight is carried on the coarser parts. The horns of the male are comparatively large, curved, and with more or less of the spiral form; the head is large, but the forehead rather low. A few of the females are horned, but generally speaking they are without horns. Both male and female have a peculiar coarse and unsightly growth of hair on the forehead and cheeks, which the careful sheep-master cuts away before the shearing time: the other part of the face has a pleasing and characteristic velvet appearance. Under the throat there is a singular looseness of skin, which gives them a remarkable appearance of throatiness, or hollowness in the neck. The pile, when pressed upon, is hard and unyielding; it is so from the thickness with which it grows on the pelt, and the abundance of yolk, detaining all the dirt and gravel which falls upon it; but when examined, the fibre exceeds in fineness, and in the number of serrations and curves, that which any other sheep in the world produces. The average weight of the fleece (unwashed) in Spain is eight pounds from the ram, and five from the ewe. The staple differs in length in different provinces. When fatted, these sheep will weigh from 12 to 16 pounds per quarter.

"The excellency of the Merinos consists in the unexampled fineness and felting property of their wool, and in the weight of it yielded by each individual sheep: the closeness of that wool, and the luxuriance of the yolk, which enables them to support extremes of cold and wet as well as any other breed; the easiness with which they adapt themselves to every change

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of climate, and yet thrive and retain, with common care, their fineness of wool: an appetite which renders them apparently satisfied with the coarsest food; a quietness and patience into whatever pasture they are turned, and a gentleness and tractableness not excelled by any other breed."

The Spanish Merinos seem to have been used by the most eminent agriculturists of Europe for the improvement of most breeds found on the continent; although an attempt, made in 1787, to introduce them into England by George III. seems to have failed. Experiments were also made with them by Mr. Coke, Sir Joseph Banks, Lord Somerville and others, but not with much success. Mr. Youatt observes:—"In Great Britain, where the system of artificial feeding is carried to so great a degree of perfection—where the sheep is so early and so profitably brought to the market—that breed, however it may ultimately increase the value of the wool, can never be adopted, which is deficient, as the Merinos undeniably are, in the principle of early maturity and general propensity to fatten." The Massachusetts farmer will bear in mind the objections here made to Merinos, viz:—That they do not make a profitable return for "*artificial feeding*," and do not arrive at the "*early maturity*" so desirable to the breeder and feeder of mutton sheep, as such. And he should also consider whether he can resort to this mode of feeding, to the neglect of his short pastures, and regardless of the amount of coarse food which he can economically and profitably feed to small and hardy sheep. He may on this point compare the profitable sheep-husbandry of England with the profitable sheep-husbandry of Vermont, and decide for himself which system is most worthy of his adoption.

While the introduction of Merinos among the mutton growers of England did not succeed, the experiment was made on the continent of Europe with very general satisfaction. In France, where sheep-husbandry has been very much neglected, and where the native sheep have never reached a high standard, either for wool or mutton, the government made great

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efforts to introduce Merinos, and in 1786 laid the foundations of the famous Rambouillet flock, from which importations have been made into this country. The Revolution seems to have checked the enterprise, however, and as late as 1831 there were 30,000,000 of the native breeds, and only 250,000 of the pure Merinos. From this cause, the extensive fine woolen manufactories of France are dependent on other nations for their supply of raw materials; and yet the only sheep in that empire which are considered truly valuable are descended from the Rambouillet flock, so admirably described by Chancellor Livingston, and from which the well known importation of Mr. Collins of Hartford, Connecticut, was made in 1840. It is said of them that:—

"1. They possess as good constitutions, and are as thrifty and as hardy as any native or imported sheep whatever.

"2. They attain a great age, having been known to reach 20 years, and may be depended on as good breeders till 12 or 14 years old.

"3. They have large, loose skins, full of folds, especially around the neck and below it, on the shoulders, and not unfrequently over the whole body; the wool thickly covering its surface, the forehead, cheeks, and the legs, clear down to the hoofs, giving the fleece, when shorn and spread out in its ample dimensions, the appearance of having been taken from the carcass of a huge buffalo, rather than so small an animal as the domestic sheep.

"4. The fibre of the wool is very fine, quite equal to the best Merino in Spain, and is the very antipodes of that of which so much complaint is made by the manufacturer, of being harsh, dry, crispy, and wiry. The fleece opens of a brilliant creamy color within, on a skin of rich pink, and is soft, glossy, wavy, and is very even over the whole body; is exceedingly close and compact, and has a yolk free from gum, and easily liberated when it comes to be washed, but which protects the wool from the weather, and keeps it free of the dead ends that are so objectionable. It becomes of the purest

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white when scoured by the manufacturer, and still retains its mellow, oily touch, so grateful to the handling of good judges. Its felting properties are beyond dispute, making it a choice material for the manufacture of fine cloths."

This description will apply to the fine-woolled sheep of Vermont and other sections of our country.

In Switzerland, the best mountain sheep are mixed Merinos.

In Saxony, Merinos have reached a great degree of perfection since their first importation in 1764. They have been preserved with great care, and have been closely bred for the purpose of improving their fleece. The sheep-husbandry of Saxony somewhat resembles that of the United States. And, although the importations of Saxonies into this country have been in many instances unfortunate, they are still found to be valuable animals, in their native regions. Mr. Grennell says that:—"Although the Saxony wool is of superlative fineness, the sheep are not hardy, the fleece being so light as not sufficient to protect them from cold and wet, or to be generally remunerative, averaging through the country only two pounds and two ounces to the fleece." The account given by Mr. Carr of their in-and-in breeding, and their enervating treatment, will readily account for this.

The sheep of Prussia have been brought to an excellence rivaling the Saxonies, by the introduction of Merinos. Previous to this, they were of a very inferior character; whereas they now form a most important part of the agricultural industry of that kingdom. The same is true with regard to the sheep of Silesia, of Hungary, of Sweden, of Denmark, of many parts of Russia, and, also, of Australia; in all of which places, the profits of sheep-husbandry are found to arise, not from "artificial feeding," but from the pasturing of large tracts of land for the production of wool.

The introduction of Merinos into the United States, in small numbers in 1801, and more largely in 1809–10 and 11, was the commencement of the wool-growing interest in this country. The history of this introduction is too well known to need

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repetition. They have been carried into almost every State, and, either pure or mixed, constitute a very large proportion of the sheep of the northern section of the Republic. Of twenty-six communications addressed to L. A. Morrell, Esq., the editor of the American Shepherd, fifteen are from breeders of Merinos, nine Saxonies, one South Down, one Lincoln; and the communications came from Vermont, Connecticut, New Hampshire, New York, Tennessee, Pennsylvania, Ohio, and Virginia.

The circumstances attending their arrival in this country were by no means fortunate. Fabulous accounts of the profits to be derived from them, excited a spirit of speculation, which ended, as it usually does, in the ruin of a large proportion of those who were carried away by it. The real value of the animal, great as it is, was lost sight of in the attempt of interested parties, to give him supernatural powers for enriching every one who purchased him. But long before the generation which dealt with Merinos as if they were fancy stocks had passed away, a fixed value was established for them as farm animals, almost equal to that which had been placed upon them by the speculator.

Some of the soundest agriculturists in our country foresaw this result, even when the excitement was at its height. Hon. John Lowell, in an address before the Massachusetts Society for Promoting Agriculture, in 1818, called the attention of farmers to the subject; and, after referring to the advantages which had been derived from the introduction of Merinos into many European countries, as shown by long experience, he relates the success which attended their breeding, in one instance, in France, by M. Morel de Vinde:—

"In 1805, only thirteen years since, he began an establishment with 2 rams and 92 ewes, of the Merino breed. In eleven lambings this moderate flock produced 1087 males, and 1001 females; total, 2088; of which he lost by disease 354. He sold 534, and had remaining in good health at the end of eleven years 1200—the produce of his original stock of 94.

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The money produce, for that period, of the flock was as follows:—From the sales of wool, 33,381 pounds, which he sold for 40 cents per pound (a price only two-fifths of the average or even lowest price in Great Britain and America), he received in cash 13,600 dollars. From the sales of sheep he realized 10,300 dollars. And his sheep on hand, valued at the rate at which the others were sold, were worth 26,000 dollars; making a total gain in eleven years, from 94 Merino sheep, of 49,000 dollars.

"He estimated his remaining sheep at 20 dollars per head, which, for so pure a flock, is not extravagant.

"There is no fallacy in this statement, which I have been able to detect, monstrous as the result may appear to be, that from a capital of 1800 dollars in sheep, a produce of 50,000 dollars had been realized in eleven years."

Mr. Lowell expresses himself satisfied of the correctness of this statement. That it may not appear wholly extravagant, we would refer to sales recently made in Vermont, within our own knowledge. A careful and experienced breeder there has paid during this autumn 100 dollars for a buck lamb, and 25 dollars per head for 16 ewe lambs; and considers himself fortunate in having obtained them at these rates. One breeder in Vermont sells from 5000 to 8000 dollars' worth of sheep annually, and keeps his flock good meanwhile. Prudent and economical farmers in that State pay frequently 50 dollars per head for breeding ewes; and ewe lambs are considered worth 10 dollars per head, as a fair market value. These prices are of course obtained for pure bred animals, of the most approved breeds in the State—breeds whose quality and quantity of wool have reached a high standard. Vermont, it will be remembered, is a wool-growing State. And there are abundant facts to prove that the Merino is of all sheep the most profitable producer of wool.

The amount of food which the Merino consumes is comparatively small; the amount of wool which he produces is comparatively large; and his hardy constitution and long life, he

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being much superior in this respect to the heavier coarse-woolled breeds, give him ample time and opportunity to repay, with large interest, any outlay which may be made upon him.

Now consider the question of food. Take any piece of pasture-land and it will undoubtedly sustain three Merinos to two Leicesters or Cotswolds—more likely two to one—estimating the amount of food consumed to be in proportion to the weight of the animals—and if the pasture is light it will probably support the Merinos well, while the Leicesters can hardly live upon it. The Merinos will yield, according to the average of the best flocks in New England, 15 pounds of wool;—the coarse-woolled sheep will yield 12 pounds. Fine wool is usually worth 50 cents per pound, while coarse wool brings 40 cents. We shall get, at these prices, from the land fed by Merinos, seven dollars and fifty cents' worth of wool; and from that fed by Leicesters, four dollars and eighty cents' worth; and taking the unusual prices which now rule, in which coarse wool brings 60 cents, while fine wool brings 50, we have seven dollars and twenty cents as the produce of coarse wool, and seven dollars and fifty cents as the produce of fine wool. In one case, two dollars and twenty cents in favor of fine wool, and in the other very unusual case, thirty cents in favor of fine wool—at the present reversed prices. The calculation which we have made here is based wholly upon summer feeding; but we think the deductions drawn from it will apply still more strongly to winter feeding, in which our farmers are more deeply interested. We are satisfied that the cost of feeding a heavy mutton-sheep of almost any English breed is nearly twice as much as that of feeding a Merino—granting, of course, that the heavy sheep is to be kept in thriving condition. We have compared the Merinos with Cotswolds and Leicesters, and we might have added Oxford Downs and Shropshires—as these are really the mutton-sheep which carry fleece enough to entitle them to the name of wool-producers.

The question will at once arise—whether the amount of mutton produced by the various breeds of coarse English sheep

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will counterbalance their deficiency in wool, as compared with the Merinos. There is no doubt that an Oxford Down or a Cotswold will grow twice the mutton in two years, that will be grown by a Merino—perhaps more. We speak of single animals. But if the amount of food consumed by one Cotswold is as large as that consumed by two Merinos, we must estimate accordingly. Suppose a Cotswold to yield 90 pounds of mutton, and 12 pounds of wool in two years; the mutton at 5 cents per pound—the price usually paid by the butcher—bringing $4.50; and the wool, at present prices, bringing $7.20—the sheep pays $11.70. Suppose the two Merinos to yield 60 pounds of mutton and 20 pounds of wool in two years; the mutton, at the above price, brings $3.00; and the wool, at 50 cents per pound, brings, $10.00—the two sheep pay $13.00; giving a balance in favor of the Merinos of $1.30. If we take the usual prices of wool, this balance must of course be greater. The advantage which the Merino possesses, is that he pays a much larger price for the food which he consumes, as he goes on to maturity. He is a more profitable boarder—an important consideration in our climate.

There is an argument in favor of coarse-woolled heavy sheep, based upon their production of lambs, which at first glance seems difficult to answer. It seems true that a lamb which at six months old will bring $5.00, is more profitable than one which at the same age will bring $3.00. But is it not also true that on the same feed two fine-woolled ewes will be more likely to produce two lambs worth $3.00 per head, than one coarse-woolled ewe will be to produce one lamb worth $5.00. If it is so, we get one dollar more for our feed when converted into fine-woolled lamb than we do when it is converted into coarse-woolled lamb. We must remember, moreover, that it requires an excellent pasture to raise a lamb worth $5.00, while almost any fair New England pasture will raise one worth $3.00.

In making these calculations, we have not considered the difference which exists in the quality of pasture-lands in different localities. But this should by no means be lost sight of,

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as it should govern us, to a very considerable degree, in the selection of our animals. The early-maturing, quick-fattening heavy English sheep need luxuriant pastures, in which but little exercise is required in the pursuit of food. Climbing high hills, and cropping short grasses, cannot conduce to large and rapid accumulations of fat, or to heavy growth. Wherever, therefore, we would feed mutton-sheep, we must be sure that we have an abundance of food so easy of access as not to interfere with that sluggishness and ease which they require for their full development. On the other hand, if our pastures are hilly, rough, and clothed with somewhat scanty herbage, we must select those animals whose size and habits are fitted to such a condition of things. There is nothing so unremunerative, nothing so unsatisfactory, in farming, as the injudicious selection of animals for our pastures—or the attempt to feed an animal upon land to which by size, and shape, and constitution, he is unsuited. Both animal and pasture must suffer. If we would enjoy, therefore, that pleasure and profit which arise from an entire fitness of things, we should govern our choice of animals by the nature and capacity of our land. And if our pastures are not as luxuriant as western valleys and prairies, let us not repine; for what nature loses in quantity, she is very apt to make up in quality. The largest animals are by no means always the best. Rapid growth and great accumulation of external fat either in cattle or sheep, may be gratifying to the eye, and perhaps profitable when circumstances are favorable to such development. But there is a quality of both beef and mutton, grown to a moderate size, fed on sweet mountain pastures, and lined and ingrained with well distributed fat, which is more nutritious, and may be made just as profitable. Size and quantity have great and irresistible charms; but we should not forget that *quality* is that hidden merit which outweighs all others, and really endures to the end.

The farmers of Massachusetts can easily judge—and so can the farmers of Essex County—each for himself, to which of the two classes of animals his lands are adapted. There are

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spots in our Commonwealth where heavy cattle and sheep find an abundance of food. But do we often see at our fairs heavy mutton-sheep, which would attract the attention of those who breed and feed such animals to perfection—sheep brought to the highest point of excellence as mutton-sheep—Cotswolds, and South Downs, and Oxford Downs, and Leicesters, looking as if they had lazily luxuriated all summer in a superabundance of food? With the exception of a few flocks, not large in number, of Cotswolds, a few of Leicesters, a few of South Downs, and a few of Oxford Downs, kept with great care and at very considerable expense, we have not seen on exhibiton anywhere in New England, well developed specimens of mutton-sheep. The coarse-woolled sheep brought forward on such occasions, and exhibited as part of the farm stock of the region, often give evidence of skill in the selection, and care in the breeding of the animals; but they indicate too generally either that they have had insufficient food, or that they have been obliged to labor for their supply on rough and hilly pastures, harder than their forms and their constitutions would warrant. The condition of both fleece and carcass indicates that they have not been fed up to their requirements, at some one season of the year, either in winter or summer—perhaps in both. So, too, on our farms, the coarse-woolled sheep rarely give evidence of good husbandry; and it would be no easy matter to select a choice flock of this description from any purely grazing section of our State. That there are good flocks here and there, we do not deny; but, after careful examination, we are convinced that the average standard of mutton-sheep in New England, is far below the average standard of fine-woolled. Whether this is owing to natural causes, such as soil and climate, or to the condition of our farms, or to the superior care which fine-woolled sheep receive, others can judge as well as ourselves. One thing is certain; we must take our farms as they are, in our attempts to introduce sheep upon them. That we can feed sheep profitably there is no doubt, but they must be adapted to our agricultural circumstances. We speak now of our farms generally;

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and not of the few rare instances, in which the application of capital, liberally expended, has brought land up to the capacity of feeding any animal, however large, that may be placed upon it. This business is beyond the reach of the great mass of farmers.

In sheep-husbandry, it is evident that wool is the *primary* and mutton the *secondary* object. It is wool, as the annual return which the sheep makes, that constitutes the revenue from this branch of farming. It rarely fails to furnish a liberal return to the producer. Forming, as it does, a very important article of commerce, and lying at the foundation of extensive manufactures throughout the world, it ranks with iron, and coal, and cotton, in the possession of an intrinsic value. It is one of the least perishable commodities produced by the farmer; and up to a certain length of time, will earn more than the interest on its value, by increase of weight in storage. It insures the property invested in sheep, after they are six months old, against loss by disease and accident; for, with the exception of a few months after shearing, the fleece of the smaller breeds constitutes more than one-half their value. Considering the safety of the investment, the economy of management, and the sure returns, it is not surprising that such extensive and profitable enterprise should be devoted to wool-producing sheep.

With mutton, however, the case is very different. It does not enter into the commerce of the world, as do beef and pork. The waste in the carcass is very great, the chief value being in the hind-quarters, which are mostly used for home consumption. It is sold in the large markets only to supply daily wants. However largely it may be used, it ranks with the luxuries rather than with the necessities of life. It is said to be produced in England, 20 per cent cheaper than beef; and in this country its market value is much less than beef—rarely commanding, except in extraordinary instances, more than from 3½ to 5 cents per pound to the producer. No doubt there are sections of our country, as in Maryland, Kentucky, some parts of Virginia, and the Middle and Western States, where pas-

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turage is very luxuriant, and the climate mild, which can furnish mutton-ewes at these prices, with profit to themselves. There is no doubt that in the "artificial feeding" of England, mutton will yield an ample return. But we cannot believe that, as a general thing in New England, we can afford to reduce the value of the fleece for the sake of what profit we can make on the mutton.

That a combination of these two interests is possible, we have every reason to believe. There is a large quantity of mutton brought to market of very high quality and good flavor, which comes from the fine-wool regions of New England. The carcasses weigh from 50 to 60 pounds, are not loaded with a great weight of external fat, but carry much tallow, have good cauls, and furnish meat of fine grain and well marbled. The best of these sheep are Grade Merinos, usually wethers, whose wool has paid well for their keeping until they have arrived at full maturity. They compare well with the mountain sheep of Scotland—the favorite of the English epicure, who sends his own over-fattened mutton to market, for those who have a less delicate palate than himself. The class of sheep of which we are speaking are not only profitable to the producer from their heavy fleeces and the small amount of food which they consume, but they give a larger return to the feeder than any others. John Johnston, Esq., of Seneca County, New York, one of the most careful and successful of American farmers, stated in a communication to the Boston Cultivator, last winter, that after an experience of many years, he had found fine-woolled wethers the most profitable sheep that he could feed for the market. Thomas J. Field, Esq., of Northfield, in this State, an excellent judge of cattle and sheep, a most systematic farmer, and an extensive feeder, has informed us that this is the conclusion to which his long experience has brought him. The sheep referred to by these gentlemen are, undoubtedly, a cross between the Merino and the common native sheep of the section, composed of the various coarse-woolled breeds which have been distributed throughout the

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country. And we have ourselves seen in Vermont a flock of sheep, the result of a cross between some grade Oxford Down ewes and a superior Merino buck, which for evenness of form, compactness, a proper bony structure, quality of flesh, and thrift, combined with great weight and fineness of fleece, as well as an even distribution of wool over the whole body, can hardly be excelled. The cross in this case was evidently a good one.

The same experiment has been tried with Merinos and South Downs, with marked success. Mr. Randall, in his Sheep-Husbandry, gives an account of his own experience in this matter. He says:—"Finding it difficult to obtain Down ewes of the proper quality, I obtained a small, compact, exceedingly beautiful, fine and even-fleeced Down ram, and crossed him with a few large-sized Merino ewes. The half blood ewes were bred to a Merino ram, and also their female progeny, and so on. The South Down form, and disposition to take on fat manifested itself, to a perceptible extent, in every generation which I bred, and the wool of many of the sheep in the third generation (⅞ blood Merino and ⅛ blood South Down) was very even, and equal to medium, and some of them to good medium Merino. Their fleeces were lighter than the full-blood Merino, but increased in weight with each succeeding cross back towards the latter. Their mutton of the first, and even of the second cross, was of beautiful flavor—and it retained some of the superiority of South Down mutton to the last."

An experiment, tried by Mr. Randall, of crossing the Merino and Leicester did not succeed so well. He produced a "showy and profitable sheep, and well calculated to please the mass of farmers." But he says:—"Their fleeces lacked *evenness*—their thighs remaining disproportionately coarse and hairy; and making up my mind that this would always be a tendency of the sheep of this cross, I abandoned them without further experiment." The cross was evidently too violent.

In some parts of Massachusetts, and in the other New England States, especially Maine, New Hampshire and Vermont,

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Merino blood has been introduced, with the same result as followed Mr. Randall's cross with the South Downs. And while we admire the public spirit and judgment, which have induced leading agriculturists to introduce the various breeds of heavy English sheep into our State, we cannot but believe that the sheep-husbandry of Massachusetts will be greatly advanced, when it is understood, that for our soil, and climate, and markets, a breed of sheep whose fleece has been improved by Merino blood, and whose mutton is of the size and quality which our pastures can produce, is the most profitable for a very large proportion of our farmers.

There are many matters relating to sheep-husbandry upon which the limits of this report will not allow us to dwell. The care of sheep in winter, the best modes of feeding, the time and mode of shearing, the care of lambs, treatment of disease, &c., are matters to be learned by experience, and from rules laid down in the many elaborate treatises which are within the reach of every farmer. The beneficial effects of sheep on pasture land, about which there is great difference of opinion in various parts of the State, we simply refer to as a subject of vast interest to the farmers of this county, where pastures are annually deteriorating for the want of some economical mode of cultivation. But if we shall have succeeded in attracting the attention of the members of this Society to the importance of the question, and if we shall have brought forward any views which will tend to increase the interest in one of the most profitable parts of agriculture, and one in which Essex County is peculiarly interested, and to which she is well adapted, we shall feel that we have faithfully discharged the duty imposed upon us.

The Chairman of the Committee would state that he has been unable to consult all the members upon the opinions expressed by him in this report—and he is aware that some of them may differ from him. To the following award of premiums, however, there was no dissenting voice—and to this portion of the report, he has therefore appended the names of the whole Committee.

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The first premium, of $5, to J. Z. Gordon of West Newbury, for his flock of Liecesters.

The South Down flock of I. W. Andrew of West Boxford, is entitled to favorable notice. Mr. Andrew has evidently taken good care of his sheep; and the Committee regret that he did not give a more definite account of his mode of feeding, and of the profits of the flock.

The first premium, of $5, to Dean Robinson of West Newbury, for his South Down buck.

The first premium, of $5, for the best lot of lambs, to Charles Corliss of Haverhill, for his Cotswolds.

CEO. B. LORING,
AUGUSTUS FOWLER,
T. P. MUNDAY,
JOSEPH KITTREDGE,
} COMMITTEE.

Salem, Nov. 4, 1862.

POULTRY.

The Committee on Poultry have attended to the duty assigned them, and report as follows:—

John Swinerton, Danvers, coop Brahma fowls,	$3
Robert Buxton, S. Danvers, coop Brahma fowls,	$3
" " " " Spanish,	$3
J. G. Smith, Georgetown, 1 cage Pigeons,	$1
" " " 1 coop Bantams,	$1
Chas. Nelson, Georgetown, 1 coop mixed breed, with state't,	$1
" " " 3 Turkeys,	$1
C. A. Longfellow, Byfield, 1 coop Black Polands,	75 cts.

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D. D. Adams, Newbury, 1 coop Polands, 75 cts.
J. S. Chase, 1 coop White, $1

Respectfully submitted,
SUMNER SOUTHWICK, Chairman.

STATEMENT OF CHARLES NELSON.

To the Committee on Poultry :—

I present for your inspection a lot of fowls of mixed breed. I have kept an account of the eggs sold from 22 hens from the 1st of January to the present time, which is 177½ dozen—average price, 16 cents per doz.

177½ doz. Eggs at 16c.	$28 40	
34 Chickens sold for	15 05	
1 Turkey sold for	2 00	
5 Turkeys I kept with the Hens, from which I have raised 28 Turkeys, worth 50c. apiece,	14 00	
24 Chickens on hand,	6 00	
		$65 45
Expense of keeping 22 Hens and 5 Turkeys for 10 months,	$25 50	
Interest,	65	
		$26 15
The amount of Eggs and Poultry sold and on hand, not including the old stock,		$65 45
Deduct expense of keeping,		26 15
Net profit,		$39 30

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I fed my fowls on corn and barley through the winter, with pounded bones once or twice a week. After it became warm weather I gave them dough, half Indian meal and half fine feed. I have made no account of eggs used in the family, which consisted of six persons. Calculate that will pay for feeding, and taking up the eggs.

Georgetown, Sept. 30, 1862.

DAIRY.

The Committee on the Dairy have attended to the duty assigned them, and submit the following report:

There were 23 entries of butter and 10 entries of cheese, which well sustain the former dairy reputation of our county; but a few hints may not come amiss from us at this time, though often repeated before by others. We believe one great defect in making butter is, the cream is usually kept too long before it is churned; and a still greater defect is in not properly extracting the buttermilk, and cleansing the butter with pure cold water before salting it. Nor in our opinion is sufficient care taken by most people in selecting good pure rock salt, well ground, so that it may all dissolve, and leave a pure sweet pickle with the butter, and last, but not least, we recommend to the ladies to use less salt than is usual.

The Committee, after carefully examining the various parcels, make the following awards:—

BUTTER.

S. L. Ridgeway, West Newbury, the 1st premium, of $8.
Warren Averill, Ipswich, 2d premium, of $6.
Sarah Holt of Andover, 3d premium, of $4.

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CHEESE.

Nathaniel Moody, Newbury, the 1st premium, of $8.
William Thurlow, Newbury, the 2d premium, of $6.
Daniel Silloway, West Newbury, the 3d premium, of $4.

Respectfully submitted,

THOS. P. GENTLEE,
JOHN A. PUTNAM,
JAMES CHAMBERLAIN,
WILLIAM FOSTER,
I. OSGOOD LORING,
} COMMITTEE.

STATEMENT OF WARREN AVERILL.

Gentlemen Committee on the Dairy:

I present for your examination one pot of September butter, containing 20 pounds, being a sample of 192 pounds made from one Native cow since the 20th of May last. The cow that this butter was made from is rather superior. Her butter was weighed every time it was churned. We tried for our own information, not thinking of presenting any statement or butter at this show. Four days' cream from this cow made 9¾ pounds of butter. She gave from 20 to 21 quarts of milk daily. My own family and one of my neighbor's have used all the milk we wanted through the season—three pints every day, and sometimes one gallon. Her keeping has been good pasture through the season, with one quart of meal per day. The past month the pasture has been rather dry, and she fell off in her milk more than she would, had it been not so dry.

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PROCESS OF MAKING.—The milk is strained into tin pans, usually about 3 quarts to a pan, and stands about 36 hours, or according to the heat of the weather, if it sours before that time, it is skimmed before. The cream is put in a tin pail kept for this purpose, and kept in an ice chest until we get about 6 quarts, when it is churned. We use a Thermometer Churn, the temperature being a little rising 50, and we get good hard butter in the hottest weather. The butter is salted with about 1 ounce to the pound. The buttermilk is extracted first by cold water, then beat with the hands until it is all out, then weighed in ½ pound balls, as you see.

Ipswich, Sept. 29, 1862.

STATEMENT OF SARAH HOLT.

I present for your inspection 16 pounds of September butter.

PROCESS OF MAKING.—Milk is strained into well scalded pans, and placed in a cool cellar to stand from 36 to 48 hours, it is then skimmed into stone pots, and stirred morning and evening. I churn twice a week, when the butter is taken from the churn, it is well washed with cold water; 1 ounce of rock salt to the pound is then added. After standing 6 or 8 hours, it is worked over and left until the next morning, when it is again worked over into lumps, and put up for the market.

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STATEMENT OF NATHANIEL MOODY.

I offer for your inspection three Cheeses, made in July, in the following manner:—

The milk is set at night in tin pans; in the morning the cream is stirred in with the milk and warmed, and the morning's milk added, with half a tea-cup full of rennet well mixed with the milk. In half an hour the curd is formed, when it is broken and left to drain—when drained sufficiently, it is sliced and put into the cellar. The next day the same process is repeated. The two curds are then put together, with warm water enough to cover them; after remaining fifteen or twenty minutes, they are drained, chopped fine, and salted—half an ounce of salt to a pound of cheese, with a tea-spoon full of saltpetre, well stirred in. Press thirty-six hours.

STATEMENT OF WM. THURLOW.

My method of making Cheese is as follows:—

I strain my night's milk into a tin kettle—next morning warm it as warm as it was when first milked from the cow, then put in my morning's milk, and then add a sufficient quantity of rennet to curdle it in thirty minutes. After separating the curd from the whey I put it in a cool place until the next day. When the next curd is separated from the whey, I chop fine, and warm and salt, and put it in the press.

I present for your inspection sixty-eight pounds of Cheese, made about the middle of July, which is a sample of some twelve hundred weight made this season.

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STATEMENT OF DANIEL SILLOWAY.

The Cheese which I offer for inspection and premium, fifty pounds or more, are three taken from an average of sixty, made in July and August, in the following manner:—

We had nine cows, but used and sold the milk of one. The milk was strained into a tub as soon as drawn from the cows at night, put in rennet sufficient to curdle it in one hour, slice it and let it stand in the tub until morning, then take it up and drain—and the morning's milk the same as the night's—when it is sufficiently drained, it is warmed with water, then the curd is ground in a curd grinder—salt it to my taste with blown salt —put in a hoop and press slowly for two days—taken out, put on shelves in a dark room, and turned and rubbed with butter twice a day.

FARM IMPLEMENTS, &c.

The Committee on Farm Implements respectfully report:—

That, after public notice, a trial of mowing machines took place near Berry's tavern, in Danvers, on Thursday, the 26th of June, under the auspices of the Essex Agricultural Society, and superintended by the Committee on Farm Implements. At 10 o'clock, the time set, the still frowning aspect of the lingering storm-clouds had deterred many who were anxious to witness the trial, and led the Committee to hesitate whether to adjourn to a finer day, or to proceed. By 11 o'clock, however, quite a large number of persons had collected, and the agents of the different mowers were already on the ground, desiring to show farmers how easily, handsomely, and economically

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their grass could be cut, while they only looked on. The Committee, therefore, concluded to step into the yet reeking grass, and set off the requisite number of one-quarter acre lots, from a field well adapted to the purpose, offered, with his accustomed generosity, by one of the Committee, E. G. Berry, Esq. One or two of the mowers cut the grass from the headlands, where the spectators might stand and the mowers turn, and at half-past one the trial commenced.

E. E. Lummus of North Beverly, entered one two-horse and one one-horse Woods mowers, also one Davis improved. Amos Poor, Jr., of West Newbury, entered one four-foot bar, (two-horse,) and one three and one-half-foot bar, (one-horse,) Union, and also one Manny, (one-horse,) owned by Daniel Richards of Danvers. S. A. Merrill of Salem, entered one four and one-half-foot bar, and one four-foot bar, (each two-horse,) and one three and one-half-foot bar, (one-horse,) of the Buckeye.

It was arranged that only one mower should operate at a time, so that each person might give his undivided attention to each machine. But want of time compelled the Committee to let two move together. The Woods, the Union, and the Davis improved were all new machines, light, and yet apparently well put together, and strong. The Davis improved did not work until the writer was compelled to leave the field. The Buckeye and the Manny had been often used, and their merits are well understood.

The Committee, five of whom were present, considered their duty on the occasion to be to give all those interested an opportunity to exhibit, and see, and compare the various mowers, so that each person should be the better able to judge which of them, on the whole, would be best adapted to his own work. At this time, when the sons of our farmers and so many of the constantly diminishing number of good mowers have thrown aside farming implements for the rifle and the bayonet, these mowing machines are becoming a necessity; and the great question is, Which shall I buy?

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The Committee regret that they had not the means of measuring accurately by the dynamometer the draught of the different mowers. That would have settled one important point. They were unanimous that the work was all well done. And every farmer present, who owns only one horse of nearly one thousand pounds weight, might have been satisfied that with one of these machines he can do his own mowing well.

This Committee doubts if it is best to continue, each year, to award gratuities to mowing machines which have often been exhibited, or for new ones, unless there is decided improvement in their construction or manner of doing the work.

It is often asked, Why do not small farmers more generally use a mowing machine? In reply, it may be said, each needs one, but will neither hire nor own one in common with others, for the obvious reason that he will not lie still in good weather, while his neighbor's grass is being cut. He must have the control of the mower, or he will do without it. Now, if those interested in the several mowers would combine in one machine, so far as is practicable, all the merits peculiar to each of them, and be content with a small profit, *almost every farmer would buy one;* and this Committee would gladly commend that mower by a decidedly favorable notice, and recommend a large premium.

The Hay Tedder, exhibited by S. A. Merrill, is a very ingenious machine, and no doubt will do the work well and very fast—it is said at the rate of five acres per hour; but we think very few farmers will invest seventy-five dollars in a machine simply to turn hay. Mr. Merrill also exhibited a one-horse Buckeye mower, which we doubt not would work well, drawn by one of his fine horses under his guiding hand.

Cogswell & Lee's Revolving Horse Rake, on wheels, is a new article, just patented. Those who are partial to a revolver, and have become weary with walking, can now ride and with a lever easily lift the loaded rake, two feet at least, over stones and stumps, and turn the winrow over *before* the driver, instead of behind, as other Horse Rakes do. The beam, however, is shorter than other rakes, carrying less work.

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Amos Poor, Jr., of West Newbury, the following eight articles, namely:—

1st. One Doe's Concord Plough.

2d. Whittemore, Belcher & Co.'s Wrought Iron Shaft Corn Sheller, said to be not liable to break if upset.

3d. Gale's Feed Cutter.

4th. Whittemore's Lever Feed Cutter.

5th. Whittemore's Vegetable Cutter.

6th. A Stump and Rock Lifter, with which two men can lift ten tons. It is simple and strong, and your Committee judged that it might be very useful in its line.

7th. Whitcomb's Horse Rake. We concur in the opinion expressed by a previous committee, that it is an excellent implement.

8th. One two-horse Union Mower. This is a new mower—the knives play upon steel, working close and true, and when the operator wishes, the cutting bar turns up as the Buckeye does.

E. E. Lummus of North Beverly, one two-horse Woods' Mower.

J. S. Morse showed us a Rand's Corn Sheller—simple and effective.

R. A. Smith of Newburyport, showed us his Portable Fence, which he says can be built for fifty cents per rod. It can easily be put together and taken apart, and housed when done with.

George B. Loring of Salem, entered Harrington's Hand Cultivator. No one was present to speak for it, but subsequently, in a brief note to the Committee, Dr. Loring writes, "I have used it on root-crops this season, and find it the most convenient implement I have ever used for loosening the soil and clearing weeds."

Among the Implements we found a Ditching Machine, with a notice that it would operate on the morrow. Some of the Committee went to the meadow, and found the machine broken. On the very soft meadow where it had been operating, it did

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the work rather imperfectly; but we were satisfied that upon salt meadows it would work well.

A very well finished York Buggy was exhibited by Charles Boynton of Georgetown.

A Farm Wagon and a Market Wagon by Solomon Spofford of Groveland.

A Cooking Stove was exhibited by W. A. Currier of Haverhill, from the foundry of the Barstow Stove Company. It was neat and convenient.

Bailey & Sayles of North Wrentham, exhibited a Washing and Wringing Machine which favorably impressed the Committee. Clothes not needing much rubbing are washed by passing them through the Wringer from one tub of suds to another until they are cleansed.

The Committee award the following gratuities:—

To Amos Poor of West Newbury, for the articles exhibited by him, $5
To S. A. Merrill of Salem, for Hay Tedder, $1
To Cogswell & Lee of Essex, Revolving Wheel Rake, $1
To R. A. Smith of Newburyport, Portable Fence, $1
To J. S. Morse, Rand's Corn Sheller, $1
To Geo. B. Loring of Salem, Harrington's Hand Cultivator, $1
To Geo. A. Choate of Newburyport, True's Ditching Machine, $3
To Charles Boynton of Georgetown, York Buggy, $1
To Solomon Spofford of Groveland, Wagons, $1
To W. A. Currier of Haverhill, Cooking Stove, $1

JOHN KEELY,
EBEN G. BERRY,
ISAAC CARRUTH,
JOHN WHITTREDGE,
B. F. JENKINS,
WM. R. PUTNAM,
HIRAM ROGERS,
} Committee.

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ARTICLES MANUFACTURED FROM LEATHER.

The Committee award the following premiums:

To Edwin Brown of Georgetown, for best Thick Boots, the 1st premium, of $4.

D. H. & C. Stickney, second best, $2.

Best pair Calf Skin Shoes, Stickney & Co. of Groveland, $2.

Best pair Ladies' Walking Shoes, D. H. & C. Stickney of Groveland, $2.

For best Carriage Harness, George French of North Andover, $5.

To the same, for best Wagon Harness, $3.

The Committee found the articles to be few in number, but good in quality. Only two pairs Boots, one pair Gents' Shoes, two pairs Ladies' Shoes, and two Harnesses.

CHAS. P. LOW,
EDWIN MUDGE,
A. B. NOYES.
E. P. THOMPSON,
} COMMITTEE.

PEARS.

The exhibition of Pears was fair, but not so extensive as in the two past seasons, in South Danvers. This we apprehend, in a great measure, is owing to their having an annual Show of Fruits in the eastern part of the county. Few specimens were sent from Newburyport, notwithstanding the past summer has been so productive of this fine fruit.

Premiums for the best dish of twelve specimens of the following varieties, $1 each:—

Belle Lucrative, Wm. D. Northend, Salem.

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Flemish Beauty, A. L. Peirson, South Danvers.
Beurre Bosc, D. A. Pettingel, Topsfield.
Seckel, J. S. Ives, Salem.
Buffum, Stephen Blaney, South Danvers.
Winter Nelis, Wm. D. Northend, Salem.
Black Pear of Worcester, Wm. D. Northend, Salem.
Bartlett, " " "
Vicar of Winkfield, Stephen Blaney, South Danvers.
Lawrence, Wm. D. Northend, Salem.
Glout Morceau, Warren Ordway, Bradford.
Andrews, Stephen Blaney, South Danvers.
Lewis, Amos Brown, Danvers.
Louise Bon d' Jersey, Stephen Blaney, South Danvers.
Clairgeau, Peter Wait, Danvers.
Golden Beurre, E. Lake, Topsfield.
Duchesse d' Angouleme, Warren Ordway, Bradford.
Urbaniste, Mrs. E. A. Downie, Salem.
Fulton, Sumner Southwick, South Danvers.
Wilkinson, C. F. Ives, Salem.
St. Guislaine, W. Andrews, Danvers.
Beurre Diel, Stephen Blaney, South Danvers.
Doyenne Boussock, Stephen Blaney, South Danvers.
Beurre d' Anjou, " " " "
Paradise of Autumn, Peter Wait, Danvers.
Marie Louise, " " "
Chelmsford, " " "

Gratuities.

Mrs. John Sawyer, Boxford, Flemish Beauty,	$1
E. G. Kelly, Newburyport, collection,	$1
A. L. Peirson, South Danvers, Seckel,	$1
Joseph P. Folsom, Georgetown, Flemish Beauty,	50 cts.
Andrew Curtis, South Danvers, collection,	$1
Amos Brown, Danvers, St. Guislaine,	50 cts.
B. P. Ware, Marblehead, pears,	$1
A. L. Peirson, South Danvers, Belle Lucrative,	$1

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James Gregory, Marblehead, Beurre Bosc, $1
I. L. Chase, Manchester, collection, $1
C. E. Smith, Danvers, Flemish Beauty, 50 cts.
I. B. Sargent, West Amesbury, Marie Louise, 50 cts.
C. F. Ives, Salem, collection, $1
E. Lake, Topsfield, collection, $1

Largest collection, 1st premium, "Harris's Illustrated Insects," to Stephen Blaney of South Danvers.

2d premium, of $2, to Peter Wait, Danvers.

Respectfully submitted for the Committee

JOHN M. IVES.

APPLES.

This part of the fair is an entire success. Considering the limited number of towns which have contributed to this department, no show of former years excelled, if any equalled the present.

Among so many perfect specimens of so many varieties, the Committee found it difficult, almost impossible, to discriminate. The entries were all good, added much to the exhibition, and do great credit to the contributors.

Several seedling varieties were entered, which appear to be valuable—would be especially so if winter sorts.

The Committee award the following premiums, of $1 each, for best plates, twelve each, of the kinds named:—

Garden Royal, Moody Ordway, West Newbury.
Porter, D. Haskell, Georgetown.
Baldwin, T. C. Thurlow, W. Newbury.
Ribston Pippin, A. Brown, Danvers.

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Hubbardston Nonsuch, D. P. Holmes, Georgetown.
Hunt Russett, A. Brown, Danvers.
Danvers Sweet, Alfred Ordway, Bradford.
Gravenstein, " " "
Sweet Baldwin, George Hamden, Georgetown.
Minister, Stephen Blaney, South Danvers.
Red Russett, Josiah Newhall, Lynnfield.
R. I. Greening, Alfred Andrews, Bradford.
Fall Harvey, R. Hood, Danvers.
Lyscom, H. Ware, Marblehead.
Roxbury Russett, G. W. Sanborn, Georgetown.
Green Sweet, G. W. Gage, Methuen.
Moody, D. P. Holmes, Georgetown.
Ben, or Eustis, Stephen Blaney, South Danvers.
Killam Hill, E. Lake, Topsfield.
Ladies' Sweet, G. W. Gage, Methuen.
Swaar, Kendall Carter, Danvers.
Northern Spy, D. H. Stickney, Groveland.

Largest number of varieties, Josiah Newhall, Lynnfield, one copy of "Harris' Illustrated Work on Insects."

Second, T. C. Thurlow, West Newbury, $2.

Gratuities—One Dollar each.

Moody Ordway,	varieties,	West Newbury.
Daniel Adams,	"	Newbury.
J. Longfellow,	"	West Newbury.
W. Andrew,	"	Danvers.
Peter Wait,	"	"
E. Lake,	"	Topsfield.
E. S. Parker,	"	Groveland.
George Ordway,	"	West Newbury.
Ezra Hale,	"	"
Ezekiel Osborn,	"	Newbury.
David Sawyer,	"	West Newbury.

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J. T. Burbank, Groveland, best Gravenstein in Hall, 50 cts.
L. B. George, varieties, 50 cts.

For the Committee,

J. H. ORDWAY.

GRAPES AND ASSORTED FRUIT.

The Committee on Grapes and Assorted Fruit report that there were more than fifty specimens of grapes, some of which were of decided merit, holding out a promise that ere long we should produce a grape hardy enough for our climate, and good enough for the palate.

The Concord grapes exhibited were very fine, and the Committee award to

George W. Gage of Methuen, for the best specimen,	$1
Wm. Wilson of Salem, for Hartford Prolific,	$1
G. W. Gage of Methuen, for best Diana,	$1
J. H. Osborne of Amesbury, best Delaware,	$1
Wm. Harrington, Salem, Roger's Hybrid, No. 15,	$2
G. W. Gage, Methuen, " "	$1
J. M. Ives, Salem, for best cold house grapes,	$2
M. Ordway, West Newbury, Blood's Seedlings,	$1
J. H. Osborne, Amesbury, for varieties,	$1
G. W. Gage, Methuen, for 12 varieties,	$1
J. H. Osborne, for Rebecca,	$1
Wm. Wilson, Salem, for Union Village,	50 cts.
S. H. Elliot, Haverhill, for Sweet water,	50 cts.
Wm. P. Sargent, South Amesbury, gratuity,	50 cts.
J. J. H. Gregory, Marblehead, for Chiston,	50 cts.
Josiah Newhall, Lynnfield, for Concord Grape,	50 cts.

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PEACHES.

E. W. Wilson of Georgetown, best White Flesh Peach, $1
D. A. Pettengill, Topsfield, best Yellow Flesh Peach, $1
C. F. Ives, Salem, best Blood Peach, $1
J. M. Ives, Salem, largest variety, one copy of Flint's Work on Grapes.

ASSORTED FRUIT.

D. H. Stickney, Groveland, for best basket of assorted fruit, $3
N. Bodwell, Boxford, second best basket, $2
Sumner Southwick, South Danvers, third best basket, one copy of Flint's Work on Grapes.
T. C. Thurlow, West Newbury, gratuity, $1

E. S. WILLIAMS,
J. N. SANDERSON,
D. E. MOULTON,
J. B. SARGENT,
D. P. HOLMES,
} COMMITTEE.

VEGETABLES.

The Committee award to
S. A. Merrill of Salem, for collection of vegetables, $8
Second and third premiums not awarded.
Geo. B. Loring of Salem, for vegetables, gratuity, $1
Stephen Peabody, tobacco, " 50 cts.
Horace Ware, Marblehead, cabbages, " $1
John S. Ives, Salem, for Nansemond sweet potatoes, gratuity, $1
George N. Ordway, long yellow mangold, gratuity, 50 cts.
E. A. Moulton, mommoth squash, " 50 cts.
N. S. Sawyer, Rocky Mountain potatoes, " 50 cts.

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Sylvanus Nelson, peppers, gratuity,			50 cts.
Henry L. Hill, Potatoes, gratuity,			$1 50
Benj. P. Ware, Marblehead, spring wheat, gratuity,			$1
D. A. Pettingill, Topsfield,	"	"	50 cts.
E. P. White, seed corn,		"	$1
Nathan S. Woodman, early yellow corn		"	50 cts.
Joseph Trask, squashes,		"	$1
H. A. Stiles, Middleton, flat turnips,		"	50 cts.
N. A. Sawyer, Blue Mountain Buckskin potatoes, gratuity,			$1

For the Committee,

J. J. H. GREGORY.

BREAD AND HONEY.

The Committee on Bread and Honey report that four entries of bread were made, and none of honey, and award gratuities as follows:—

To Lucy K. Palmer of Georgetown, aged twelve years, for a loaf of cake, $1.50.

To Mary G. Beecher of Georgetown, aged twelve years, for a loaf of cake, $1.50.

To Annie F. Gould of Boxford, for bread, $1.50.

To Mrs. Coggin of Boxford, for bread, $1.50.

HIRAM ROGERS,
N. LAMBERT
I. P. BOARDMAN,
EDMUND SMITH,
} Committee.

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COUNTERPANES, CARPETINGS AND RUGS.

The Committee on Counterpanes, Carpetings and Rugs would respectfully report:—

In the article of Carpetings there was an entire failure, not being even a representation.

In Counterpanes the contributions were not large, but some good articles. The following premiums and gratuities were awarded, viz:—

The first premium to Miss Abby A. Tyler of Georgetown, for a Shell Quilt, knit in a sick room, under great bodily sufferings, $4.

The second premium to Ellen M. Nelson of West Newbury, for a Union Quilt, with five hundred and fifty pieces, made in six weeks, $2.

A gratuity, of $1, to Mrs. Sarah B. Jackman (she being in her eighty-third year), for one Patchwork Quilt.

A gratuity, of $1, to Mrs. Sarah Picket of Georgetown, for a Basket Quilt, made in her eighty-fourth year.

A gratuity, of 75 cents, to Miss Lizzie Brown of West Newbury, for a Pattern Quilt.

For Hearth Rugs, the following premiums and gratuities, viz:—

The 1st premium, of $3, to Mrs. Wm. W. Rust of Ipswich, for two wrought Hearth Rugs.

The 2d premium, of $2, to Miss Elizabeth M. Perley of Georgetown.

A gratuity, of $1.50, to Mrs. Mary Davis of Topsfield, for a very nice Braided Rug.

A gratuity, of $1, to Miss Anna P. Boynton of Georgetown, for two Rugs.

EBENEZER S. SWEETSER, Chairman.

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FANCY ARTICLES, &c.

The Committee on Fancy Work and all other articles not included in the jurisdiction of other Committees would report:

That the articles presented for their inspection, were not so numerous or so various as the displays of former years, arising, undoubtedly, from the fact that the hands of the gentler sex—who have in years past filled our halls with those attractive specimens of their handiwork (never deficient in patriotism) have been employed in a nobler cause. And as their hands were thus employed, we were sorry that our hall was not filled with articles for the comfort and benefit of our soldiers, rather than with articles for mere show in our homes.

The Committee would award the following premiums and gratuities:—

For the best specimen of work performed by a child under twelve years of age, exhibiting industry and ingenuity, the first premium, of $3, to Miss Almira C. Merrill of Newburyport, aged five years and ten months, for a worked Sofa Cushion.

Gratuities.

C. M. Moulton, West Newbury, shell frame, $2

Lydia M. Tenney, Georgetown, moss landscape and crayon paintings, $2

Mrs. Samuel Coffin, Georgetown, 2 crayon paintings, $2

Sumner Southwick, South Danvers, walking stool for children, $1 50

F. O. Raymond, Haverhill, chair coverings, $1 50

Ellen M. Cook, Newburyport, specimens of raised worsted work, $1 50

A. C. Saunders, Haverhill, fancy articles of wood, made by a wounded soldier with knife and file, $1 50

Annie F. Gould, Boxford, what-not with leather trimmings, $1

Eben Trask, Beverly, doll's bedstead, $1

Sarah Kimball, Georgetown, specimen of raised worsted work, $1

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Lizzie P. Nelson, Georgetown, specimen of hair work, $1
Miss Abby F. Tyler, Georgetown, cone wall-pocket, $1
Miss Annie F. Gould, Boxford, " " $1
Mrs. J. O. Davis, Georgetown, 4 cone frames, $1
Miss E. Hobson, " cone bracket and frame, $1
Mrs. S. C. Weston, " cone basket, $1
Miss S. M. Stickney " 2 ottoman covers, $1
Mrs. Wm. Ashby, Newburyport, 2 specimens of bead work, $1
Misses S. M. and H. P. Lovering, Georgetown, 2 specimens of crotchet work, $1
Miss Mary C. Lander, Newburyport, 1 specimen of embroidery, $1
Miss Sarah A. Kimball, Georgetown, 1 specimen of embroidery, $1
Mary E. Stanley, So. Danvers, 4 specimens of embroidery, $1
Mrs. T. L. Lovejoy (aged 68 years), West Newbury, 1 specimen of embroidery, $1
Miss Sarah A. Darken, Rowley, embroidered pillow covers, $1
" Butman, South Danvers, feather work, done by a child aged 10 years, $1
Miss S. P. Baker, South Danvers, worsted work, $1
A. H. Palmer, Georgetown, military folios and diarys, $1
Miss M. A. Yeaton, " 4 pairs stockings, $1
" C. L. Carter, " 3 leather frames, $1
Mrs. F. O. Raymond, Haverhill, affghan, $1
Miss Mary P. Low, Methuen, " $1
Mrs. E. D. Kimball, Newburyport, " 75 cts.
Miss Lydia A. Folsom, Georgetown, worsted work, 75 cts.
Mrs. A. B. Ashby, " leather frame and painting, 75 cts.
Miss Adams, Georgetown, 4 dolls in black, 50 cts.
" Ellen M. Cook, Newburyport, shell frame, 50 cts.
" Annie M. Haskell, Georgetown, 3 dolls and 2 mice, 50 cts.
" M. P. Stickney, " chair cushion, 50 cts.
" C. M. Moulton, West Newbury, sofa pillow, 50 cts.

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Miss R. J. Savory, Georgetown,	wax work,	50 cts.
Osmer Perley,	" 2 crayon drawings,	50 cts.
A. H. Pickett,	" " "	50 cts.
A. W. Currier, Haverhill,	clothes dryer,	50 cts.
Miss S. S. Baker, South Danvers,	embroidered yokes,	50 cts.
" M. A. Stanley, Salem,	cake covers, crotcheted,	50 cts.
" Lucy M. Tenney, Rowley,	3 tidies,	50 cts.
" Mary Davis, Topsfield,	embroidered pillow cases,	50 cts.
" Lucy M. Tenney, Georgetown,	tidy,	50 cts.
" T. E. L. Newhall, West Newbury,	shirt, made by a child,	50 cts.
Mrs. G. B. Foster, Haverhill,	worsted cape,	50 cts.
" M. D. Hardy, Georgetown,	leather frames,	50 cts.
Miss Sarah F. Knapp,	" " "	50 cts.
" A. B. Jackman,	" chair seat,	50 cts.
" M. E. Carr, West Newbury,	card basket,	50 cts.
" Sarah C. Palmer, Georgetown,	stockings, made by a child of 7 years,	50 cts.
Miss N. A. Larkin, Byfield,	3 tidies,	50 cts.
" Abby A. Tyler, Georgetown,	cone frame,	50 cts.
" Anna D. Carr, West Newbury,	2 ottomans,	50 cts.
" Simpson, Georgetown,	crotchet work,	50 cts.
" Bridge, Haverhill,	hair work,	50 cts.

We would mention some fine specimens of worsted work by Mrs. Milton G. Tenney of Georgetown; also, Woodruff's Barometers, a Melodeon, from D. B. Brooks & Co., Salem, Bailey's Wringing Machine, and a Callendar Clock, from C. L. Carter, Georgetown.

For the Committee,

ANDREW NICHOLS.

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FLOWERS.

Rev. John L. Russell, Chairman of the "Committee on Flowers," offers the following report:—

The offering of premiums and gratuities for flowers by the Essex Agricultural Society, indicates that it appreciates the relation floriculture holds to the improvement of the earth. The same remark obtains in regard to the mode in which flowers are to be exhibited, viz: in "boquets, floral designs, cut flowers," &c., and in specifying "native flowers" as worthy of premium or gratuity, it is evident that these are to take equal rank with the choicest exotics.

It is still a too common error, that the cultivation of flowers is of so distinct an occupation that it might seriously interfere with the usual farming, or that it is unworthy of the time and care of the family. But this error vanishes on a moment's reflection, in the single and correct idea of what a flower really is. Everybody loves flowers it can be safely asserted; at least no one entirely averse or indifferent to them has ever come to my knowledge. All plants, at some period of their growth, are furnished with an entirely different set of leaves or foliar appendages, to which the learned affix significant names, and which leaves differ also usually in color and fragrance. They may be very showy and conspicuous, or quite otherwise; but it is all the same in point of fact, and they are equally flowers. The blossoms of the common potato are truly elegant, and are worthy of being tied up into a boquet with other and different blossoms of the Solanum family, such, I mean, as are admitted to be flowers and which are cultivated with unusual care. The flowers of the onion have the same structure and the same claim as other liliaceous plants, only they do not smell so sweet. And so with native flowers; we know many far more beautiful than those taken so much care of, in the garden or the greenhouse. Some plants too are admitted as floricultural objects, whose flowers are inconspicuous or comparatively mean, but whose foliage is diversified by tints or beautiful by contrast of

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colors; and in the admiration of a field of corn, with its rich dark green blades, the same love of flowers is seen, as when in the chillier latitudes the Indian corn is raised in the flower pot as a curious exotic. A noble plant of drumhead cabbage, weighing forty pounds, to the eye of the structural botanist and to that of the market gardener alike, is as fine as any flower, verifying the otherwise ungenerous remark attributed to the great English lexicographer, that of all the flowers of the garden he preferred the cauliflower. A head of wheat has no more intrinsic beauty than the spike of the most common grass; yet they who once see that the same structure belongs to both, will not prize the wheat the less, while they prize the grass blossoms more. The foliage and flowers of the sweet potato are just like those of the morning glory, yet we call one a vegetable and the other a girl's posy.

The Virginian creeper will cover some old wall completely with its rich green fingered leaves in summer, and its magnificence of foliage in autumn—a sight of which would amaze an European—and although it is cousin to the fox grape, some prefer the latter, with its rusty leaves and great hard astringent skinned berries. Here is only a difference of *taste*, for both are ornamental plants or flowers. The wild yam has large thick roots, and pretty light green, graceful leaves, and the Japan yam has smaller roots and not so pretty leaves. One may have a choice with the useful pretty, and the undiscovered-useful pretty climber. They both look well trained as ornamental flower vines. Very handsome climbers are the great scarlet flowered beans; they bear rich blossoms, and he who "knows beans" would think them next to the tender and difficultly raised Lima; but they are flowers as much as vegetables. The sunflower is a noble plant, its gorgeous blossoms have a homely, honest look. So honest are they, that they will not act the l'e attributed to them of turning always to the sun; but because their seeds are good for feeding fowls or for making oil, are they admired the less? The question turns,

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then, both on what are flowers and upon the utility of flowers to an agricultural community.

The use of floriculture may be stated as, among other objects, inducing a love of beauty order neatness and comfort at home. It promotes a love of beauty, inasmuch as flowers are admired for their beauty apparent or discoverable. Where not apparent, the flower is less prized. And we class flowers as coarse and seedy, delicate, graceful, elegant, superb, &c. No one can raise a flowering plant, so called, even marigolds or sunflowers, bluebottles, amaranths or caper-plants, without soon extending his culture to others more attractive. Better raise these than cultivate none—far better the old peony root and cinnamon rose, the lilac and bouncing Bets, than uncomely weeds by the front door, such as single leaved tansey and motherwort. Begin with something that needs care, and your children will end with something worth admiring. I know of the severest domestic toil of woman on the farm gladdened by her tulips and roses and sweet smelling flowers. Where the wife and daughter improve in loving the beautiful by new acquaintance with more and more beautiful flowers, the son and husband will not be slow to follow the example, in the trees and houses and out-buildings. I will admit the extraordinary beauty of the farmer's clean and blossoming potatoes, if he will see how much more beautiful is his home from his wife's or daughter's flowers nearer the house. So a flower border, and it need not be extensive or expensive, to give all the satisfaction it can render, must be kept orderly and free from weeds. Thus the cultivation of a few plants afford unusual facilities to the children, in teaching them how to become methodical and orderly in other particulars. The experience of parents, who have encouraged a love of flowers in their children, and which they have related to me, is convincing that much profit is here to be gained every way. A few moments' interest in such an use of a bit of land near home, kept secluded from the hens, swine or vexatious intruders, may be seen throughout life in the method and order for graver con-

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terns; and the children's pretty and neat flower border may become a better teacher of virtues indispensable to success, than money or maxims of policy could ensure. Besides, it is a great end gained, when home becomes the most attractive place; when the garden is better than the street or the highway for boys' recreation; and where books and newspapers and external and internal decoration prove more attractive than the corner, or the village store. Such, among other means, can floriculture and its periodical literature render any farmer's home to himself and to his children.

In every crisis that calls for true and sincere patriotism, and love of human rights, we look mainly to the intelligent and happy homes, where the hearth-stone or the door-step is the dearest spot, because sanctified by whatever elevates and refines; and that home will be the longest remembered in which domestic comforts have been produced by the happiest, sweetest and purest means.

I have thought that were premiums awarded in elementary treatises or in books to children for the best cared for flower border, the best grown pot-flower, or the prettiest boquet of a limited number of blossoms and kinds of leaves, the design of premiums and gratuities might be properly promoted; or a small outlay of the annual appropriation in new seeds to be distributed to youthful competitors and their produce exhibited at the fair, would promote taste in the right direction. Or packages of such seeds might serve as a premium if thought advisable, many probably availing themselves of such a privilege.

A few words on boquets.—The skilful arrangement of flowers is acquired only by long experience; but a few hints may not be out of place. A boquet may be artistical and formal, or natural and graceful. When flowers are scarce the former is admissible; and in winter the florist must avail himself of every flower he can command; hence he ties them to a stiff stick, which he conceals by winding them closely, so as to present an unbroken surface. Such a boquet becomes too expensive,

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and cannot last long, and requires too much time in construction. The other kind is much more valuable, and can be formed in a few minutes. Every few days let the sitting-room table or the mantle in the best room have one or two such. Let one of the daughters see that this is done, as much as the dusting or sweeping. It is in effect no more than the continuation of the 'lection lilacs, or the pine boughs in the chimney, only the variety is greater, and the vessel which holds them is not the great pitcher. A beautiful boquet of the kind I speak, was offered at your show, and was made up of native flowers, gathered, doubtless, not far from home. In the opinion of your Committee no "hand boquets" were offered. This sort of boquets should be quite small, tasty and light, weighing a few ounces only, and composed of fragrant flowers, such as any garden can furnish.

There are some flowers which appear to greatest advantage in dishes, either of glass or porcelain, rather than in vases or bottles, such as double balsams, roses, asters, dahlias, and the delicate blossoms of many kinds of annuals. And the charm of their possible effect is heightened by a few parsley leaves, carrot leaves, or similar deeply cut foliage laid over the rim. Such a display is fitted for the centre-table, but much is gained by combination of colors or by studied contrast, acquired best by experiment rather than by prescribed rules.

For the farmer's garden the much neglected holyhock should be recommended. A few good double varieties were offered, and received a gratuity. A little care in selecting from good blossoms, and planting the fresh seed every spring, would soon ensure a beautiful and constant display. Towards winter a covering of coarse hay or of sea-weed, eel-grass or the like, would prove sufficient protection from the frosts. We hope to see more of this rival of the dahlia at our future Shows.

The opportunity which our Annual Fairs afford of seeing new or rare exotic plants, should not be overlooked. It is hoped that premiums, as heretofore, will be continued, and if possible, increased so that we may enjoy the privilege of

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knowing what is esteemed among more opulent and enthusiastical florists, be it the most *regal* begonia, or the imperial "Eugenie" of passion flowers generously contributed this year, and not to be soon forgotten. Some well grown pot-plants recur to us, as the century aloe, fuschias, geraniums, &c.

A pretty wreath was the only "floral design" offered. The wreath is always attractive, and can be "designed" from a greater variety of flowers, berries, seeds, &c., than any other mode of arranging them. Wreaths of perennial blossoms are far more attractive than baskets covered with everlastings—a basket of heads of burdocks would be no less homely and unartistical. So, all carpentry in form of obelisks, pyramids and temples, are as ungraceful and out of taste, and should be discouraged—the poor drooping and fading dahlias or asters, vainly striving to conceal the boards and lathes beneath.

As a whole, the display of flowers this year was very good, and though limited in number, the variety was respectable. The city, as might be expected, out-vied the country—and Newburyport sent some choice specimens. We would welcome all contributions, and all sorts of blossoms, and especially would we recommend to our members the flower border as of as much comparative utility on a good farm as the onion lot and the potato patch, the little, nice, neat, orderly flower garden odorous with sweet-smelling herbs and pinks and gilly flowers, as the carrot drills or the ruta bagas and mangel wurtzels; each in turn contributing to make the farmer's home pleasant and its members healthy, prosperous and wise, their lives cheerful and old age when it comes to them, serene.

The Committee report the following premiums and gratuities:—

Best pair of parlor boquets, to Mrs. Haskell of Newburyport, premium, $2

No hand boquets were entered.

No floral designs offered.

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Best dish of cut flowers, Wm. Wheelwright, Newburyport, premium, $2

No entries of the requisite number of dahlias, phloxes or verbenas.

Best dish of native flowers, consisting of a graceful bouqet, from Mrs. H. A. Spofford of Groveland, premium, $1

Largest and best display from one individual, to Edward Flynn of Lawrence, premium, $2

Gratuities.

Edward Flynn of Lawrence, for varieties of holyhocks, 50 cts.

Also, to him, for 12 boquets and for fine dahlias, $2

Mrs. D. Hull, of Georgetown, for a well grown rose geranium, 50 cts.

Dr. Geo. Osgood of Danvers, for a boquet of wild flowers, 75 cts.

John Preston of Georgetown, for a fine spike of Japan lily, 75 cts.

Maria J. Plumer of Georgetown, for a white tea rose, 50 cts.

Mrs. Coffin of Newburyport, for vases of cut flowers and an elegant wreath, $1.50

R. Burrell of West Newbury, for 2 specimens of begonia, $1

Charles C. Downs of Bradford, for finely grown pot-plants, $2

Mrs J. G. Nelson of Georgetown, for salvia splendent, 50 cts.

A. J. Ordway of Newbury, for a large artistically arranged pyramidal boquet, 75 cts.

J. C. Thurlow of West Newbury, for a dish of roses, 75 cts.

M. J. Hardy of Georgetown, for a vase of cut flowers, 50 cts.

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CRANBERRY CULTURE.

For the Committee on Experiments in the Cultivation of Cranberries, I respectfully report that no cranberry grounds have been offered for their inspection. This failure is not owing to any lack of attention to such culture, but rather to the late spring frosts, which damaged alike the crops and the cultivator's hopes for premiums.

One of your committee—John D. Hildreth of Manchester, who has taken the first premiums the last two years—has, at my request, kindly furnished me with some notes in regard to the failure of his crop this season. The facts which he presents must be interesting to cranberry growers, and I take pleasure in presenting them in this report, in place of any extended remarks of mine.

Mr. Hildreth says :—"I let the water off the 10th of May. The vines soon began to grow finely—I never saw them look better. At night on the twenty-fourth I found the mercury was down within a few degrees of freezing. I commenced lighting my fires, about nine oclock, all around the meadow, and kept them burning through the night. The smoke went up in straight columns about forty feet, and there rested like a cloud. Perhaps if there had been less blaze, the smoke might have come down lower. The frost was as severe close beside the fire as anywhere. There was not one fruit bud (which had then started) left—the ruin was complete. I afterwards put down the gate, and kept the vines nearly covered until the thirteenth of June. I now think the best way is to draw off part of the water before the middle of May—leaving only just enough to cover the vines—until the tenth of June. The water will get too warm in the day to freeze at night if there is frost, and I find it will not injure the vines."

It appears from the facts here stated that burning fires afford no protection to vines, except the state of the atmosphere be such that the smoke will settle in a cloud very low. Smoke is, perhaps, less likely to settle thus in the clearest and coldest

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nights than at other times; and although it may often protect vines against light frosts, it cannot *always* be relied on to perform such duty effectually. Water is a certain protection wherever it is properly applied; indeed, plenty of water under convenient control is indispensable for the most profitable culture of cranberries on our meadows. A plentiful covering of water will perfectly protect cranberry vines through all the inclemencies of winter; water will save entire crops from destruction by spring frosts; water will destroy that pest of the vine, the cranberry worm; and with water the finest crops may be grown in dry seasons, when vines on less favored grounds are pinched and parched with drouth.

The cranberry crop is still worthy of the best attention. Even this season, when nearly all other fruits are superabundant —when the finest pears can scarcely be given away, and choicest apples may be had for the asking—cranberries are readily sold at from nine to twelve dollars per barrel.

Of this fruit we have not yet enough for a plentiful home supply, while we ought to export thousands of barrels yearly. This county ought to pay cranberries for all it imports from our sharp trading cousins across the Atlantic.

Respectfully submitted,

NATHAN PAGE, Jr.

PASTURE AND WASTE LANDS.

The Committee on Pasture and Waste lands report that two entries were made for premium, viz: One by Jonathan Berry of Middleton, and the other by Charles Nelson of Georgetown.

Your Committee inspected the land offered by Mr. Berry at the time the grass was ripe for cutting. The piece offered for

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premium contains an acre or more; the crop, in the judgment of the Committee, would amount to one and one-half tons to the acre of hay, composed of herds grass and red-top. The land afforded a pleasing contrast with similar land adjoining covered with bushes, and unproductive.

The main drain as well as the laterals are open drains, which readily convey off the water; and as the subsoil is hard and the ditches on the sides made sloping, they present no obstruction to teaming across, and answer the purpose intended.

Annexed is Mr. Berry's statement.

STATEMENT OF JONATHAN BERRY.

I offer for inspection and premium an acre or more of land in a lot containing about six acres, on two of which I was awarded the second premium in 1855—this piece at that time being but partially reclaimed; containing a great many stones. These were removed—many of them sold. An open drain was then made through the field twenty rods in length, from two to three feet wide, and one and one-half feet deep, near the centre of the lot. At the west end is another ditch eight rods long, two feet wide, and one and one-half feet deep, running into the main ditch, by which the lot is drained. Part of it was then ploughed into beds, leaving furrows for the water to run off. It was then leveled with soil drawn from the roadside, and about two hundred bushels of leached ashes applied to the acre, then sowed with grass seed. This was in 1859. The following year on a part of the land the hay was very light—about fifteen hundred to the acre. As some parts of the lot were low, the grass was damaged by water. In the fall more soil and one hundred bushels of leached ashes were spread. In 1861 the crop was estimated by good judges to be from thirty to forty hundred to the acre.

The expense of reclaiming it cannot be ascertained, as I had no idea of offering it for a premium, but am well satisfied that it will fully pay all expense.

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The land to which our attention was called by Mr. Nelson contains about four acres. The land, as per statement subjoined, was mostly covered with bushes—and the lowest part with water during half the year. The bushes having been cleared, and the land freed from water by covered drains filled at the bottom with small stones to within eighteen inches of the surface, so as not to obstruct the plough. This method of underdraining is good economy on some lands where small stones are to be cleared away; and if done well the drains answer the purpose intended for a long time—as some of the Committee know from experience.

STATEMENT OF CHARLES NELSON.

The piece of land I offer for premium contains about four acres; it was mostly covered with bushes, consisting of blueberry, whortleberry and lambkill, or laurel. The water stood upon the lowest part six months in the year. In the autumn of 1858 I dug a drain through the lowest part, from three to four feet deep and filled it to within about eighteen inches of the surface with small stones, then covered with leather shavings about one inch, then filled with what had been dug out the drain. Cost, one dollar per rod, there being twenty-seven rods.

In the autumn of 1859 cut and burned the bushes at a cost of five dollars; ploughed the land at a cost of twelve dollars; in the spring of 1860 harrowed and planted at a cost of fourteen dollars—planted with corn and potatoes, manuring in the hill with about three cords to the acre, which is forty-eight dollars at four dollars per cord; hoeing three times, fifteen dollars. Harvested sixty bushels of corn, worth one dollar per bushel, and one hundred and fifty bushels of potatoes, worth fifty cents per bushel.

In the spring of 1861 removed about eight cords of roots and sods at a cost of three dollars; ploughing and planting,

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twenty-five dollars; hoeing three times, fifteen dollars—manured in the hill as the previous year; harvested seventy bushels of corn, worth eighty cents per bushel, and one hundred bushels of potatoes, worth forty cents per bushel. Finding the water stood on the north part, I put in a drain at a cost of fifty cents per rod, which is eleven dollars and fifty cents. The present season sowed about half the piece with barley; harvested twenty-six bushels of barley, worth sixty-five cents per bushel. The other half planted with corn and potatoes; harvested forty bushels of potatoes, worth thirty-three cents per bushel; have gathered four rows of corn of an average quality; shelled and weighed the same, it weighing ninety-eight pounds. There being one hundred and twenty-eight rows, there will be fifty-two bushels, of sixty pounds to the bushel.

Spread three cords of manure on the corn ground and put six cords in the hill. Cost of ploughing, sowing and planting, twenty dollars; hoeing three times, eight dollars. The corn fodder and straw paid for the harvesting.

LAND.

	Dr.	
To Draining,	$38 50	
Cutting bushes and burning,	5 00	
Ploughing,	34 00	
Harrowing, planting and sowing,	37 00	
Hoeing,	38 00	
Removing roots,	3 00	
Manure,	132 00	
		$287 50
	Cr.	
By Corn and potatoes in 1860,	$135 00	
Corn and potatoes in 1861,	96 00	
Barley, corn and potatoes in 1862,	69 10	
		$300 10
Deduct expenses,		287 50
Gain,		$12 60

Besides the improvement of the land.

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The Committee, feeling that the objects of the Society in offering premiums for improvement of unproductive lands, have in these cases been effected, award to

Jonathan Berry of Middleton, the 1st premium, of $15.

Charles Nelson of Georgetown, the 2d premium, of $10.

JOSIAH NEWHALL,
JEREMIAH COLMAN,
CHAS. P. PRESTON,
} COMMITTEE.

REPORT ON FARMS.

The farm of Dr. Geo. B. Loring, usually called the Pickman Farm, situated in Salem, having been offered for the Society's premium, was visited by the Committee on the 14th of August and on the 5th of November. The illness of Dr. Robinson, an important member of the Committee, and a most valuable member of the Society, prevented his attendance. His place was supplied, at his own request—and the Committee were happy in being favored with the attendance of Gen. Wm. Sutton as a substitute, at their first meeting.

Dr. Loring has given the Committee great pleasure by offering his farm for premium, and thus giving the Society and the public the benefit of his statement, constituting as it will the most important part of this report. He is the only claimant the present year.

This noble farm is situated in South Salem. It touches Lynn upon its south-west border, and adjoins the lands of the late Judge Putnam on the same side, while the farm of the heirs of the late E. H. Derby touch it on the west and north-west.

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As you enter the parlor of the farm-house—which was occupied for some generations by the Pickman family—you notice what ought to be seen in every farm-house, a finely drawn plan of the farm, made from actual survey, by which we learn that it contains some *four hundred and thirty acres,* but more exactly as follows, viz:—

	Premises.	Statute Measure. Acres.	Roods.	Rods.
No. 1.	House, yard, barns, &c.,	1	1	17
" 2.	Orchard,	6	2	0
" 3.	Orchard west of house,	2	3	0
" 4.	Arable land in front of house,	5	1	13
" 5.	Marsh by Forest and Pickman rivers,	6	1	3
" 6.	Upland,	8	2	23
" 7.	Marsh and meadow north of river,	9	0	14
" 8.	Upland,	6	1	35
" 9.	Marsh,	8	2	25
" 10.	Upland,	11	2	24
" 11.	Marsh,	12	3	26
" 12.	Marsh,	1	1	28
" 13.	Marsh,	3	1	30
" 14.	Upland pasture,	21	3	17
" 15.	Upland,	9	1	14
" 16.	Upland and swampy meadow,	50	2	36
" 17.	Great pasture,	113	2	26
" 18.	Upland,	10	0	8
" 19.	Orchard,	1	0	0
" 20.	Nursery, orchard,	1	0	17
" 21.	Virginia orchard,	14	0	0
" 22.	Upland,	27	2	13
" 23.	Upland,	89	3	25
" 24.	Piece on Marblehead road,	4	1	27
		428	0	21

The country seat of the Doctor is a fine mansion, situated upon a beautiful eminence, some one hundred rods south-westerly from the farm-house, built by himself but a short time since. It is surmounted by an observatory, from which the

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view is extensive and beautiful. The ascent from the plain to the mansion is by a somewhat winding way, of easy grade, while the descent upon the opposite side towards the Lynn and Marblehead road, in the bend in Forest river, is abrupt and wooded.

But the farm. At the time of the August visit of the Committee, our attention was first called to the underdrained field in front of the farm-house, a full account of which was given by the owner in the Society's Transactions in 1859. One acre and one-eighth at this time was in mangel wurzel, and the balance (four and three-eighths acres) in English grass, the second crop being perhaps half grown. The whole field was underdrained by the present owner in 1857, before which time "it was good for nothing." It was of this field that a former occupant and lessee speaks in his statement, made thirty-two years ago, when he says—"There is of wet meadow land not more than five acres, which is never tilled, but drained, and yields good crops of stock hay." At the time of the Committee's recent visit (in November), the crops had been harvested. Upon the acre and one-eighth in mangel wurzel the crop measured sixteen hundred bushels, or sixteen hundred bushels to the acre! The two crops of English grass upon the four acres and thirty-three rods *measures* twenty-seven tons. It is proper to state the method by which the quantity was ascertained. The hay was upon the scaffold and occucupied the space from the scaffold floor to the great beams, a height of eight feet. One of the bands was measured, and seven hundred cubic feet were estimated to weigh a ton. By this method (one usually adopted and considered reliable where weighing cannot be had) the first and second crops upon this piece of land are found to amount to the astonishing quantity already mentioned—twenty-seven tons, or six and four-tenths tons to the acre. As Dr. Loring's method of draining, together with his discription of the land before draining, were minutely described by him in the Society's Transactions for 1859, already referred to, it is quite unnecessary to repeat any part of his

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statement in this report. That part of the land under consideration where the above mentioned crop of mangel wurzel has been this year grown, with the exeeption of the one-eighth of an acre, which was in potatoes, was in corn in 1861; and the crop, as Dr. Loring informed the Committee, was ninety bushels of shelled corn. The amount of manure applied for the corn crop was twenty-five ox-cart loads, spread and ploughed in. For the mangel wurzels this year forty-seven loads were put on, twenty-five being ploughed in and twenty-two loads put in the drills; the said drills being two feet apart.

The remarks of Dr. Loring, casually made during the Committee's walk over the farm, on the subject of succession of crops in connection with the field above mentioned, are regarded as too valuable to be lost. "Mangel wurzel will follow ruta baga well, but the reverse is not true. Ruta baga grows smooth and handsome on new land taken up in June and well manured. The *late sowing* of ruta bagas is indispensable, as the aphides (plant lice) are far less likely to attack the plants. Mangel wurzel will do but little upon dry, sandy or gravelly soil—it requires a rich and *heavy* one, but ruta baga does best on what the wurzel rejects." It is, indeed, upon precisely this kind of soil—*a heavy and rich one*—that the astonishing crop of mangel wurzels was produced. Some of the roots weigh eight or more pounds. Dr. Webster defines this vegetable as the *root of scarcity*, a definition hardly appropriate upon the Pickman Farm. Previously to the underdraining in 1857, the water had been carried off, if at all, by surface drains, some four feet wide at top; drains always greatly impeding the operations of mowing and carting off hay.

RUTA BAGAS.

When the *small amount of labor* which this crop usually requires is considered, it will be found to be one of the most remunerative of crops. It does not require high manuring —and one or two applications of the hoe, and that, as the owner says, at odd jobs and in dull weather, is all. Two and

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one-half acres were ploughed in June, thus late to avoid the *plant louse*, so destructive when sowing is done early; and the Committee's judgment was that from two thousand to two thousand five hundred bushels would be harvested from that field. The roots were smooth and beautiful, and usually command one dollar per barrel. Dr. Loring's method of keeping the ruta baga is interesting, because it saves labor besides being effectual. The roots are put into *pits* dug some four feet deep and of about the same width, and twenty feet long, more or less. Notwithstanding the fair price of this crop at market, we understand the owner to say *all his roots are fed out to the cattle and horses;* beginning from the time of their coming to the barn. Everything except the roots is subjected to the *steaming process*—apparatus for which is not wanting.

CARROTS.

This crop, grown upon three-fourths of an acre, seems not fully to have realized the reasonable expectations of the owner. Still it is a fair one—we should call it a great one, did not other root crops exceed it, though of the amount no estimate by the Committee was made.

INDIAN CORN.

The cornfield, of fourteen acres (together with one acre of turnips), is west of the railroad from Boston to Salem. The time of the Committee did not admit of visiting this field in November. That it suffered in spots from the worms was evident in August.

MANURES.

Fresh meadow mud is dug in September to the amount of some five hundred ox-cart loads, and kept exposed to the frost during the winter. It is then mixed with one hundred casks of lime and well forked over. Dr. Loring applies phosphate of lime in the hill before dropping the corn. About one ton was used upon the above mentioned fourteen acre lot, west of and adjoining the railroad. Dr. Loring's method of treating

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salt marsh sods will be interesting to all who have occasion to deal with them, and will no doubt appear in his statement to be published herewith. It is well known that the surface sods taken from the marsh are generally well nigh indestructible when exposed to the action of the air, and even when chopped fine and laid in the cow-yard they are often inveterate. Swine will usually work them up as well as anything; but the cotton-wool character clings to them so tenaciously that many farmers reject them altogether, and would never remove them from the marsh, except upon the principle of abating a nuisance. As soon as they are thoroughly frozen, Dr. Loring has them deposited in his barn cellar, where they are covered by cattle droppings and remain frozen during the winter. On exposure to the air in the spring they fall to pieces and mingle with other ingredients readily; thus saving the labor of a mechanical division, always laborious and imperfectly done at best.

Of the artificial manures, Dr. Loring is satisfied that ground bone outlasts all others. It is not known, however, that any *mill* suitable for grinding bone is within the reach of Essex county farmers. The bone meal sold at the agricultural stores has all the appearance of *burnt* bone ground. What effect the burning may have upon the lime is not clear; but that all the animal fibre and oils have been destroyed the absense of effluvia abundantly testifies.

BUILDINGS.

Having already alluded to the house, the buildings next in importance are the barns. By a description of them in a ack number of our Transactions it appears that "there are two upon the place, one one hundred feet in length, and thirty-five feet in breadth; the other, one hundred and fourteen feet long, and forty-two wide. The latter has a cellar under the whole of it; the main part of which is for manure, and receives all the deposits of the cattle. A portion of this cellar is inclosed for the storing of fruit and vegetables."

A steam boiler situated between the two barns throws the

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steam into both, for cooking the corn fodder and the hay. The piggery is under the south-easterly barn. The swine are kept in four or more pens. We noticed two fine litters of young pigs. The swine are of different breeds—from the snug Suffolk to the coarse Chester, all handsome and well fed. For a fuller description of this important department, we would refer to the statement below.

The indispensable *tool shop* is not wanting on this magnificent farm. The articles are "too numerous to mention"—a horse hoe, all of iron, with three cutters and a wheel; a hand weeder, having a wheel forward with five flat cutting knives flaring both ways, &c., &c.—tools with which some of the Committee certainly were quite unacquainted, and yet evidently no surplus or useless one.

CAPABILITY OF SOILS FOR CONTINUAL IMPROVEMENT.

It is interesting to remark the capacity of all soils for unlimited improvement. The man is still living and vigorous (Mr. Mechi of Tiptree, in England) who purchased poor land because he had no means for buying better. At the time of Dr. J. R. Nichols' visit at that farm some six years ago, arriving there "*the first of June*," he found that Mr. Mechi "had already taken three heavy crops of Italian rye grass—a valuable variety—and was expecting a fourth ready for the scythe *in a week!*" while in Switzerland, in the *month of May*, the farmers "had already secured one, and in some instances two crops of grass." And the old adage—"What man has done, man can do," is never to be forgotton. And perhaps the same idea may attach to soils, or to many of them.

The Committee are not in possession of sufficient data to allow them to speak with accuracy upon this point in relation to the Pickman Farm. We have nothing, in fact, running back much more than thirty years; that being about the time when a statement was published in the Society's Transactions relating to the products of this farm. Previous to that time, as we are informed, for at least one hundred years, it had been

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cultivated by the Pickmans, fathers and sons—the very name of whom is a guaranty for superior cultivation. The presumption we think is a fair one that it has been cultivated, and cropped, too, to the apparent extent of its capabilities for all of one hundred and thirty years, and yet is now far in advance of itself at any former period. What a comment on those who, after a few years of trial, *sell out* and "go West," or somewhere to find unexhausted land!

But the Committee feel that it would be invidious to draw comparisons between the present and former years. Dr. Loring has been in possession for five years. In that time, as respects the single article of English hay, it can be said with truth, that upon the land where the grand experiment of underdraining has been made, the fifteen hundred pounds of hay to the acre has become twelve thousand. It is not pretended that all the crops have advanced in this proportion; but as a whole the state of the farm is greatly improved.

The owner is also the *dweller* upon the soil; and although much of the management is no doubt left to Mr. Ham, the superintendent, yet the owner is familiar with all the details, and may be said to direct almost all. Dr. Loring's extreme and minute acquaintance with each animal of his extensive stock, struck the Committee with both delight and surprise.

A full statement relating to the buildings and fences will follow this report. We do not feel that we do justice to this farm, nor that it is possible to do it after enjoying only two visits to its hundreds of acres. It this moment occurs to us that there is a fine field, of seven acres, by the side of the road from the farm into the city proper, which was ploughed after the hay crop was taken off, and which has since been manured and laid down again, with the new grass well under way for the next year.

But enough we think has been said to prove our point, viz: *That soils may be improved ad libitum*—by which is meant, like the Pickman Farm, they may become *ligneous* and no longer *herbaceous* merely—that is, they may be growing upon *old*

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growths, and not, as is too often the case, be merely *living every spring*, to be followed with *dying every winter*. It may be true that in some departments a *change of policy* in farming has been pursued; as for example less attention may have been paid to fruit and more to hay; less to one kind of root and more to another; but, as before hinted, the *grand idea is* that for reasons Providential, and therefore sometimes beyond mortal comprehension, the resourses of mother earth are found to be boundless and inexhaustible—we say *sometimes* beyond our comprehension, we might have put it stronger and say it is, perhaps, generally so; and yet, notwithstanding the whole philosopy of *plant growth* has for ages been wrapped in darkness as intense as midnight, the chemists have brought forward, within a comparatively recent period, an accumulation of important and beautiful facts of amazing signification. And the engouraging result is, these facts are not, as heretofore, lying buried beneath the crucibles of the chemists, but the agricultural world is now being blest with men who can appreciate and appropriate them. So long as gentlemen can be found who, like the accomplished owner of the Pickman Farm, are willing to spend a part of every day actually in the field—if not literally with book in hand, yet with the knowledge of it in his head—reducing to practice great scientific truths, and watching the progress and the results, and then, like him, *communicating* the whole without hesitation or reserve, so long is there a bright future for the farmer.

The Committee would distinctly call the attention of all who read the statement of Dr. Loring, to his remarks upon the use of *sand* as a manure, recollecting, however, that much of his farm is inclining to clay, or being decidedly so. In addition to the more palpable uses of the sand described by him is the mechanical one of its uniting first with the manure itself, thus *opening*, *dividing* and making a passage through it for the rootlets long before they would otherwise find one; but, also, and more especially, carrying on this important operation of dividing and pulverizing the tenacious soil itself. Look at a

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lump of pure clay, and imagine, if you can, how long it would take the ordinary processes of cultivation to make it productive! But sand—river sand, salt sand—will open its unwilling jaws. It is not a *manure* in itself; but it is the pioneer opening a pathway for the forces that shall make the wilderness blossom as the rose. Dr. Nichols tells us that a plant is like an infant as respects its preparation of food. It has no teeth to masticate, no salivary glands to pour out diluting fluids to render digestable its rocky aliment; it can receive it only in a liquid, soluble form. And Dr. Dana tells us that the salts and earths form *voltaic batteries with the roots of growing plants*, to be brought in contact with the "salts" and "earths" of a clay bed so as to get the benefit of the "voltaic battery," unless you first open a way for them by some process as natural and practicable as that of the freest use of *sand?*

But, as before mentioned, the prospects before the farmer, and consequently the county itself, are bright and full of encouragement. When the nation's last fight is to be fought, and her last victory won, we have no possible means of foretelling; but long after that time shall have come, the triumphs of willing science over unwilling soils will be but just beginning. So long as our own county can show such farmers as Loring, and Sutton, and the Wares, father and son, and Ives, and Page—the acting and ex-Presidents of the Agricultural Society, with many, many others all ready and anxious to follow where our distinguished county chemist, Dr. J. R. Nichols, leads; so long old Essex may rightfully boast, not only of what it is, but of what *it is to be.* And we by no means admit that this is, as the British Reviews say, rearing a fictitious capital of renown which our posterity are to pay off; for *the present generation of Essex farmers*, we believe, *will do a good share of it themselves.*

Interesting communications to me from Mr. Rogers and Dr. Merriam, members of the Committee, whose valuable suggestions I have incorporated in this report, sustain me in my views; and they urge particularly a competition among the

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smaller farms of the county, where the chief agricultural interest lies, for the premium of the society. It is regretted that the space occupied by this report and the statement, prevent an entire publication of their contributions. With these introductory remarks I present the statement of Dr. Loring.

DAVID CHOATE, Chairman.

GEO. B. LORING'S STATEMENT.

To the Committee on Farms:—

The farm which I enter for premium is situated in Salem, and is known as the Pickman Farm. It contains four hundred and twenty-eight acres, lying in a body in the south-easterly part of the city. It came into my possession April 1st, 1857; since which time I have added to it about seventy acres of pasture-land, lying in the towns of Boxford and Middleton, and known as Bald Hill.

The land in Salem is divided into one hundred and ten acres of cleared and cultivated fielding, thirty-eight acres of salt marsh, producing black grass, two acres of fresh meadow, and the balance of pasturing.

The surface is uneven—the pastures occupying considerable elevations of syenite and greenstone, mostly covered with not a deep soil of a rich warm quality, interspersed with a few small swampy spots;—the cultivated land consisting of deep beds of clay, extending from low salt marshes to the foot of abrupt ledges, and running some distance inland between them, usually along the sides of fresh water courses, which rise in the pastures; and the salt marsh being composed of peat lying upon tenacious clay. The level of the field, which is mostly

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not many feet above high water mark, is diversified by two or three gravelly knolls, rising to the height of about thirty feet, and occupying nearly seven acres of land.

The soil under cultivation is, therefore, mostly strong clayey loam, with a heavy clay subsoil. The gravelly knolls to which I have referred furnish, from one to five feet below their surface, beds of the finest beach sand. The farm is abundantly supplied with deposits of muck. It is well watered both by brooks and small ponds. The natural growth of wood is the *Red Cedar* in the pastures; the Walnut, Red Oak, Elm, Swamp Maple, and a few Pines, both hard and soft, growing upon the lower lands.

When I took possession of the farm, five years ago, I found it in a somewhat dilapidated condition. The buildings were out of repair, the orchards were decayed, and the fields were, most of them, under poor cultivation. The year previous, the crop of hay was about 150 tons of English and salt hay; 100 bushels of corn, 55 bushels of barley, 650 bushels of carrots and mangel wurzels, about 90 bushels of potatoes, 175 barrels of apples, and a few bushels of rye. The stock on the farm consisted of 46 cows, 12 yearling heifers, 2 hogs, 3 horses, 4 oxen and 1 bull. The drainage of the farm had been, for years, wholly surface drainage, ditches varying in depth from one to three feet, and beds laid up with the plough. All the clayey land on the farm was drained in this manner.

The labor which has been done on the farm, under my direction, has been devoted to thorough drainage, the restoring of the orchards, the cultivation of grass, grain and root crops, the breeding of cattle, horses, hogs and poultry, and the sale of milk.

DRAINAGE.

Into considerable of my heavy land I have introduced thorough drainage with tiles. In a former report upon this subject, I laid before the Society the plans, method and cost of draining 5½ acres of very stiff and unmanageable clay, liable

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to be flooded, and always cold. Since that time I have drained other pieces of land in a similar manner, and to my entire satisfaction. The crops upon the piece referred to first have been largely increased. From fifteen hundred pounds of hay to the acre, grown, too, upon a field divided by a wide, deep, inconvenient ditch, and arranged in high beds separated by deep furrows, I have increased the yield to valuable corn, root, grain and grass crops, raised upon a smooth and even surface. Last year I raised, upon this field, ninety bushels of corn upon one acre, fifty bushels of barley to the acre on four and three-eighths acres, and a fair crop of potatoes on the remaining eighth surrounding the corn. This year the field was divided into four and three-eighths acres of grass, and one and one-eighth acres of mangel wurzel; the grass yielded seventeen and one-half tons of the first crop, and nine and one-half tons of the the second crop—making in all twenty-seven tons of hay, or six tons to the acre; and the acre and one-eighth of mangels yielded sixteen hundred bushels. Having entered these crops for premium, I have given a more explicit statement with regard to them elsewhere. Other fields have been brought into similarly even and fertile condition by thorough drainage.

ORCHARDS.

The orchards occupy about twenty acres. The trees are fifty years old, and were many of them imported grafted fruit. The Pickman Pippin, a very valuable cooking apple, was introduced upon the farm by Col. Pickman, in the year 1810, having been sent to him from England. The rest of the trees are Baldwins, Hubbardstons, Pearmains, Spitzenburgs, Danvers Sweets, Liscoms and Roxbury Russets. The trees have long since passed their prime; and when I took them were suffering much from neglect. A system of root-pruning—practiced by digging around the tree, at the distance or five or six feet, a ditch two feet deep, cutting off about half the roots, and filling the ditch with a compost of muck and lime—has brought the

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trees into good condition and bearing. I have been very careful not to cut the tops excessively—never having allowed more pruning than would clear out the dead wood and suckers; for I am satisfied that you may apply severe treatment to the root of an old tree with benefit—but you cannot cut the top liberally, either for grafting or pruning, without in a short time destroying the tree. The land occupied by one orchard I have devoted to grass crops—rye-grass, oats and barley cut green, clover, &c., ploughing it every spring and manuring it fairly; and I have found it beneficial to the trees, besides giving me as good crops as can be raised on shaded land. I would add here, what I have repeatedly stated elsewhere, that I have no faith in the profit of orchards.

GRASS.

Much of my land is devoted to grass, and is peculiarly adapted to it; and every course of husbandry which I adopt, is with a view to obtaining as large a supply of this valuable crop as possible. Herdsgrass and clover grow most readily on the strong clayey soil; red-top is seldom seen, except slightly intermixed with the herdsgrass; and, when the latter has run its course, it is followed by a thick, heavy, not coarse, growth of clover. In seeding down land which has been devoted to a series of corn and root crops, I sow my grass seed with barley, as the best grain I can find for the purpose. This is done as early in the spring as the land will admit—early sown barley being usually the best; and, by thus making a long season, I am supplied with a good cut of clover after the barley is harvested. Half a bushel of herdsgrass, half a bushel of red-top, and ten pounds of clover, is my rule for seeding.

When I would renew the grass, in land which is too stiff for easy cultivation—and I have considerable of this—I plough after haying, generally in August, and seed it down to grass alone, using the quantities mentioned above, without the clover. In doing this I plough eight inches, with any common sod-plough, which will lay the furrow as level as possible; I then

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roll with a heavy iron roller; apply twenty-five ox-cart loads of composted manure to the acre; harrow with Geddes's harrow, by far the best implement for this purpose that I have ever used; brush or harrow in lightly the seed, and roll again. This process has never failed to give me a heavy grass crop the following year. Twelve acres, which last year yielded but half a ton of hay to the acre, gave me this year, under this management, three tons of excellent herdsgrass hay to the acre.

I have top-dressed a great deal of run out grass land; but not with the advantage which I anticipated. Heavy lands unquestionably need stirring now and then; and light lands require frequent incorporation of manure.

GRAIN.

Corn and barley are the grain which I raise in any considerable quantity; on gravelly soils, a little rye, as much for the straw as for the grain. I raise corn because it is the best crop I can take from land which I propose to lay down to grass. I think grass follows it better than it does any of the root crops, potatoes included. I believe, moreover, that corn well cultivated is a profitable crop; and that corn fodder properly cured and properly fed to cattle will amply repay the cost of cultivation. Manure is spread upon the surface of my corn land and harrowed in; and a little super-phosphate of lime or ashes, the former placed in the hill, and the latter applied at the first hoeing, generally gives abundant crops.

The field appropriated to corn this year contains about fourteen acres. It is rather low, and intersected by a small brook. On one side of this brook, the land is clayey and heavy; on the other it is a mixture of sandy and clayey loam, strong and warm, in some places presenting the appearance of having been washed from the surrounding ledges by heavy floods, and all interspersed with small shallow deposits of decayed vegetable matter. Last year this field yielded a very small crop of hay—not more than half a ton to the acre. Its surface was broken by boulders, and by a knoll covered with Red

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Cedars, bushes, and stones. In September of last year it was thoroughly cleared of stones and trees; new ditches were dug; an elevated spot of about three-quarters of an acre, very springy, was drained with tiles; and the whole field was ploughed eight inches in depth. From a deposite of muck in one corner of the field, five hundred loads were drawn and deposited at proper distances from each other, in heaps of about one hundred loads each. Late in the autumn twenty casks of lime were mixed with each heap. A hundred loads of barn-yard manure were drawn into the field during the winter. In the spring the compost of muck and lime was spread evenly upon the land, and harrowed in with Geddes's harrow, heavily weighted. The land was then lightly furrowed; a small quantity of super-phosphate placed in each hill —on a portion of the field the barn-yard manure was also used in the hill—and the corn was planted from May 24 to May 30. During the summer a few spots suffered from water, and larger patches were destroyed by the wireworm. But where the corn escaped these evils, its yield was seventy-five bushels to the acre; and the fodder was very heavy. A portion of the field, which contains in all sixteen acres, was planted with potatoes and cabbages.

The whole expense of clearing this land and preparing it for the corn crop was as follows:—

In October, 1861, with 8 men and 4 yoke of oxen, 144 days' work,	$144 00
Blasting boulders, 10 days' work,	12 50
Lime,	55 00
Tiles,	12 00
Composting lime and muck, 15 days,	14 00
Ditching, spreading compost and harrowing in spring, 1862, 30 days,	40 00
	$275 50

After this the expense was what usually attends raising the corn crop.

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Of the small grains, barley is to me the most profitable. My land yields readily fifty bushels to the acre, when it is in condition to be seeded down to grass. Barley always finds a good market, and the straw is valuable fodder for store cattle.

ROOT CROPS.

It is not proposed to discuss here the value of root crops. It is enough to say that I have raised from four to seven thousand bushels annually for the last five years—last year sixty-five hundred bushels—this year forty-three hundred and twenty-six bushels. The roots raised are the mangel wurzel, carrot, ruta baga and English turnip. The seed used for the last four years has been imported by the Massachusetts Society for Promoting Agriculture. For mangel wurzel, strong rich clayey loam is best, manured with eight cords of barn-yard manure, well rotted, to the acre, about as much more applied in the drills, with the addition of twelve or fifteen bushels of refuse salt. The seed should be soaked thirty-six hours before planting, the water being hot when poured upon it; and it should be dropped by hand and covered with the hoe. It is very seldom that a machine will drop and cover mangel seed in such a way as to secure an even crop. A strip of plank four inches wide and three feet long, from the lower side of which one and one-fourth inch pins project two inches, with spaces of seven inches, applied lengthwise on the top of the drill by means of a light frame handle, is a convenient implement for making the holes into which the seed is to be dropped. This avoids the labor of thinning the plants, and enables the cultivator to cover the seeds at a uniform depth. Mangel wurzels are raised almost exclusively for my milch cows—a few being fed to store hogs. They should be sowed by the 20th of May.

Carrots are raised on rather warmer, lighter land, enriched with rotted barn-yard manure, ten cords to the acre. The land is ploughed twice, raked smooth and rolled lightly. The seed is sowed by machine, in rows from ten to thirteen inches apart. I prefer the short orange, as the soundest and heaviest root;

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the crown being very large and the point thick. It is more easily harvested, and does not lose in weight like the long orange; the long tap of which is apt to wilt after being kept three or four months in the cellar. I sow carrots as soon as the ground becomes warm in the spring. I raise them for my horses; having found them to be an expensive root, and of small benefit to my milch cows or store cattle. My crop this year was six hundred bushels on ninety rods of land.

Ruta bagas require lighter land and less manure than either of the before mentioned roots. The best crops I have ever had, were raised on new gravelly soil, ploughed about six inches, enriched with about four cords of manure harrowed in after ploughing. Roll the land lightly, and sow the seed with machine. In this way a solid smooth root may be raised. On old land ruta bagas make long necks and rough bodies. They are the cheapest root raised, and the most valuable for store and fatting cattle. The seed I use is "Skirving's King of the Sweeds," imported by the Massachusetts Society. In order to avoid the ravages of insects, and to prevent the root from being overripe in the autumn, sow ruta bagas about the 20th of June.

POTATOES.

The potatoes raised on the farm, were all planted on new land—a small portion on the cleared field referred to, and the remainder on pasture-land cleared for the purpose. The latter had no manure, except a handful of plaster in each hill. The seed was Jackson Whites, and an excellent potato brought from Maine by my foreman. Those raised in the pasture-land were smooth, of uniform size, very mealy, equal to the Chenango in its best days. The yield was a bushel to twenty-two hills.

The *cabbages* raised were the late Savoy and Drumhead, planted on new land, manured with barn-yard manure in the hill.

The land occupied by the crops referred to was as follows:—
Barley—five and one-half acres.

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Corn—fourteen acres.
Potatoes—four acres.
Mangel wurzel—one and one-fourth acres.
Ruta baga—two and one-half acres.
Carrots—ninety rods.
Rye—one and one-half acres.
Rye-grass—two and one-half acres.
Cabbages—one-half an acre.
Corn fodder—one acre.
Kitchen garden—one-half an acre.

Making the land devoted to crops thirty-three and three-quarters acres.

Of English grass there are seventy-seven acres.

The amount of crops raised on the farm this year is as follows:—

English hay,	165 tons.
Second crop (a large part being fed on the land in the autumn),	15 "
Salt hay,	40 "
Rye-grass,	8 "
Barley straw	28 "
Corn fodder,	40 "
Amount of fodder,	298 tons.
Ruta bagas,	1876 bushels.
Mangel wurzel,	1800 "
Carrots,	600 "
Potatoes,	400 "
English flat turnip,	50 "
Barley,	250 "
Rye,	40 "
Indian corn,	500 "
Cabbages,	3 tons.
Apples,	600 barrels.
Cider,	80 "

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In addition to these, were raised garden vegetables sufficient for my own family and that of my foreman.

The *Stock* on the farm consists of:—

Cows—50, including two year old heifers that have calved; yearlings—12; calves, from four to ten months old—14; two years old steers—2; oxen—4; bulls—2.

Horses for work—3; breeding mare—1; four year old colts—3; three year old colts—2; yearling colts—2; sucking colt—1; stallion—1; driving horses—2.

Swine, fatting and stores—14; breeding sows—3; sucking pigs—15.

The cows, heifers and calves are mostly pure and grade Ayrshires; all bred by myself, except twenty, of which six were imported and fourteen were purchased in the market. I selected this breed, after having satisfied myself that they will make more milk out of a given amount of food than any other cattle—that they are hardy and well adapted to our soil and climate, and that they fatten well, when fed for the shambles. The two year old steers enumerated are grade Ayrshires, twins; and they are well shaped, vigorous, and of good size. The bulls are both Ayrshire—Irvine, imported by the Massachusetts Society, and Allard, by Essex, out of an Ayrshire cow imported by Hon. Joseph S. Cabot of Salem.

The stallion, one driving horse and six of the colts are of the Black Hawk family—through Trotting Childers.

The swine are a cross between Chester County and Suffolk; they reach great size, from four hundred to six hundred pounds, feed easily, and cut well; often six inches over the shoulder.

The *poultry* are—fifty hens, a mixture of Black Spanish and Game, hardy, heavy fowls, and good layers. They carry great thickness of fine grained meat on their breast. The English Game cock, either the Derby or, what I now have, a bird from Lord Berwick's breed, is pretty sure to improve any flock of hens with which he is mixed—always excepting the coarse East India fowls, which persist in being *sui generis*. Thirty turkeys, a mixture of Bronze from Worcester county, and the

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Canada; a solid bird, in weight midway between these two breeds. Twenty ducks, a breed brought from England, whose name I have been unable to ascertain.

The buildings on the farm are—One barn 42 by 114, with manure cellar and root cellar occupying all the space beneath. In this barn the milch cows, oxen, one bull and the farm horses are kept. Hay is stored in it in bays and mows, and on a shifting mow over the drive-way, reaching from the mow-beams to the ridge-pole. Another barn 32 by 100, arranged in a similar manner, where dry cows and young cattle are kept. This barn has an L attached, 18 by 52, containing stalls and boxes for breeding mares and colts, with a hay loft. This barn and the L have cellars under them. There are, also, a corn-house, 16 by 20, a cider-house, carriage-house, hen-house, hog-stye, wood and cart sheds and farm-house. All the barn-cellars are stone-walled on three sides, and closed in front with boards; three wide double doors admitting to each cellar.

Water is brought to the farm-house, barn-yard and largest barn by a hydraulic ram.

Manure. All the manure used on the farm is made on the premises; and last year amounted to about one thousand loads. I use in composting, muck, sea-weed, clearings from salt marsh ditches and sand. The turf or sod cut from salt marshes, which is usually so tough as to defy all decay, may be disintegrated by placing it in the barn-cellar in winter, when it is frozen and covered with ice, burying it with manure, thus preventing its thawing too soon, and forking it over when the weather becomes warm. It then comes to pieces, mixes readily with the manure, and forms an excellent compost. In working sand into my manure, I use it as bedding for my cattle and horses not at work. It keeps them free from vermin, prevents barn itch, makes a comfortable bed for them, absorbs all ammonia, and keeps the buildings free from smell, and forms a most valuable addition to the manure applied to my clay lands. It is easily worked, and requires but little handling compared to muck. It prevents manure from heating, and on this ac-

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count is most useful to combine with horse manure. It cannot be recommended too highly to all who have heavy lands to cultivate.

The sales from the farm during the last year have been :—

Milk, 60,912 quarts.
Apples, 400 barrels.
Cider, 75 barrels.
Vinegar, 200 gallons.
Ruta baga, 130 barrels.
Potatoes, 50 barrels.
Barley, 200 bushels.
Pork (2000 pounds now on hand), 1500 pounds.
Pigs, 12.
Calves, 30.
Heifers (fat), 2.
Cows, 20.
Bulls for breeding, 2
Colts, 2.

The labor is performed by a foreman, milkman and eight laborers in summer, and three in winter.

In addition to the milk sold, enough is reserved for the families of myself and my foreman, and to make butter for my own family nine months in the year.

The food for the milch cows is English hay, usually chopped fine and mixed with meal or shorts three times a day, and mangel wurzel, about half a bushel, once a day. A portion of the time they are fed on corn fodder, chopped and mixed with cob-meal. During nearly the whole winter all the food, with the exception of the roots, is prepared by steam, for which purpose I have a moveable tank in each barn, connected by long pipes to a steam boiler. The young cattle and dry cows are fed on straw, black grass and corn fodder, with very little corn meal, also prepared by steam, and a peck of ruta bagas per day.

I have given a hasty sketch of the farm and its operations,

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leaving it to every practical farmer to enlarge upon such suggestions as may appear of value to himself, and apply them to his own locality, according to circumstances.

A chief part of the success of a farmer who relies on others for his labor, depends upon the skill, and accuracy, and economy, and judgment, with which his foreman carries out his plans, and perhaps improves on them. And I should be guilty of an act of injustice, did I not remind the Committee that wherever my designs have been put into practical operation, I am under obligations to Mr. Elias Ham, my foreman, who discharges his duty in such a way as to show what it is to fulfil faithfully that most difficult of all offices, farming for another.

All of which is respectfully submitted,

GEO. B. LORING.

The Committee, after visiting the farm of Dr. Loring, and having carefully considered his statement, are unanimous in awarding him the first premium of thirty dollars.

DAVID CHOATE,
WILLIAM SUTTON,
R. A. MERRIAM,
JOSEPH S. HOW,
GEORGE DANE,
SAMUEL ROGERS,
} Committee.

ROOT CROPS, &c.

The Committee on Root Crops would report:—

The following statements of entries have been laid before them, and the crops have been viewed.

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BENJAMIN HUNTINGTON'S STATEMENT.

ONION CROP.

The statement made by Benjamin Huntington with regard to his onion crop, containing certificates of survey and measurement, having been mislaid, the Committee would report the facts laid before them. The land measured three-fourths of an acre; and has been used for onion crops for the last twenty years. Last year the crop was nearly destroyed by the maggot.

The land was fall-ploughed, and was again ploughed in the spring. It was manured with four cords of stable manure. It was seeded on the 20th of April, three pounds of seed being used on the piece, or four pounds to the acre.

The expense of ploughing, manuring, seeding, hoeing, cleaning, setting traps for the fly, and harvesting, was $94.

The crop was 625 bushels, 50 pounds to the bushel.

The crop sold for	$343 75
Leaving a net profit of	$249 75

The variety was the Danvers onion, and the size was large and uniform.

To this statement of Mr. Huntington's we subjoin that of Hanson Ordway of West Newbury.

STATEMENT OF MR. ORDWAY.

To the Committee on Root Crops for the Essex Agricultural Society—Sirs:—

The crop of onions I present for premium was raised on one-half an acre of land—being a portion of the same on which was grown the crop of corn for which I received a gratuity of ten dollars the last year—and has been cultivated as follows. Last fall two and one-half cords of barn-yard manure were spread on and ploughed in five inches deep; last spring one hundred bushels leached ashes were spread on; the ground

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was cultivated one way with a horse cultivator and harrowed both ways, after which it was raked, and sown with two pounds of Danvers seed, on the 7th of May. The crop received three hoeings and weedings, and when harvested was perfectly ripe and sound. The crop was sold for one cent per pound, and weighed (as will be seen by certificates accompanying this report) twenty-three thousand one hundred and forty pounds, making four hundred and sixty-two bushels and forty pounds.

23,140 pounds at 1 ct.		$231 40
Cost of manure and cultivation :—		
Manure,	$10 00	
Drawing and spreading the same,	2 00	
Ploughing,	1 00	
Ashes,	10 00	
Cultivating, harrowing and raking,	2 00	
Sowing,	50	
Seed,	4 00	
Hoeing and weeding,	10 00	
Harvesting,	8 00	
Marketing,	10 00	
Interest on land,	3 00	
		$60 50
Profit,		$170 90

Respectfully submitted,

HANSON ORDWAY.

West Newbury, Nov. 3, 1862.

I hereby certify that the land on which was grown the above crop measured one-half acre, and that the above statement is correct.

C W . ORDWAY.

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I hereby certify that I weighed a portion of the crop of onions presented for premium by Hanson Ordway, which weighed three hundred and forty-five pounds.

CHAS. W. ORDWAY.

Newburyport, Oct. 14, 1862.

I hereby certify that I weighed seven loads of onions from Hanson Ordway, for premium, which weighed twenty-two thousand seven hundred and ninety-five pounds.

GEO. J. GEORGE, Weigh Master.

The crops of both Mr. Huntington and Mr. Ordway are very large; and were cultivated with skill and care.

There is an extraordinary similarity in their statements; showing, as we think, the accuracy with which they both managed their crops. The difference in the yield and profit of each per acre is as follows:—

Mr. Huntington raises at the rate of 937 1–2 bushels, or 46,875 pounds per acre.

Mr. Ordway raises at the rate of 925 bushels and 30 pounds, or 46,280 pounds per acre.

Mr. Huntington receives $240.75 profit on the 3–4 acre, or $321 per acre.

Mr. Ordway receives $170.90 profit on the 1-2 acre, or $341.80 per acre.

Mr. Huntington's cultivation costs $141 per acre.

Mr. Ordway's cultivation costs $121 per acre.

It appears that Mr. Huntington's crop costs 3 11-1875 mills per pound.

It appears that Mr. Ordway's crop costs 2 711-1107 mills per pound.

It will be seen that these two crops are very nearly equal, there being a difference of only 595 pounds to the acre, or about 12 bushels. It seemed to the Committee that the question of economy in the cultivation was, therefore, the most

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prominent one to settle. And as the calculation shows that Hanson Ordway excelled in this point, they consider him entitled to the premium.

They are unanimous, also, that Mr. Huntington would be entitled to a gratuity, were any allowed, for the care and skill with which he managed his crop.

S. A. MERRILL'S STATEMENT.

CABBAGES.

I submit the following statement of a cabbage crop that I raised this season. Last fall I selected an acre of old worn out grass field, from which I had about one ton of hay to the acre, turned it over last fall, ploughing eight inches deep. Early in spring spread four cords of green barn manure to the acre, and cross ploughed four inches deep; then opened my drills three feet apart, putting one barn-shovel full of compost manure to each hill—the hills being three feet apart—and covering it about one inch deep; then dropping in my seed and covering it one-half an inch deep. The second week in May I hoed and thinned the plants to two in a hill. About this time I also scattered on each hill a small quantity of plaster, to prevent the cabbage bug from destroying the plants when small. About the second hoeing, thinned to one plant in the hill. About the middle of August, I commenced gathering them for the market, receiving for the first gatherings ten dollars per hundred, and less as the season advanced. My whole crop brought from seven to ten, and averaged eight dollars per hundred. I gathered thirty-five hundred cabbages from this acre, averaging from twenty to thirty pounds each, when

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ready for market; some weighing from forty to sixty pounds, with stump and leaves on.

Value of crop:

3500 cabbages at $8 per hundred,		$280 00

Cost of crop:

Breaking up land,	$4 00	
4 cords of green manure,	20 00	
Cross ploughing and harrowing,	3 00	
4 cords compost manure,	20 00	
Labor, preparing ground,	4 00	
Cost of seed,	1 00	
Plaster,	1 75	
Cultivating,	20 00	
Marketing,	50 00	
		$123 75

Surveyor, Thomas Cotton.

Salem, Nov. 6, 1862.

J. J. H. GREGORY'S STATEMENT.

SQUASHES.

The piece of land I enter for premium, for squashes, was planted towards the close of May, with Boston Marrow squash, the hills being about 8 by 9. After the plants had developed the sixth leaf, they were thinned to two and three plants per hill. In the course of the season the crop received three cultivatings and three hoeings. The crop was well ripened, of

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even size, averaging about ten pounds per squash, and showing all the outward characteristics of purity.

In the year 1858 this tract was in grass; in 1859 it was planted with the Hubbard squash, after a very heavy manuring of about eighteen cords per acre of various manures, principally barn-yard. In the year 1860 the crop was cabbages, the manure, at the rate of about eight cords per acre, being barn-yard, sea manure and unleached ashes. In 1861 the crop was seed cabbage, the manure being cow and hog manure, at the rate of eight cords per acre. This season the only manure applied was a handful of Coe's super-phosphate to the hill. In the early part of the season I had considerable trouble from the small striped bug; the recourse for preventing their depredations was air slacked lime applied to the leaves while moist. The large black bug, known as "stinking" bug or "pumpkin" bug is properly a pumpkin bug—*almost entirely disappearing after the cultivation of the pumpkin is given up in any locality.* I have found but two of them on my squash vines for the past three years.

Marblehead, Mass., Nov. 8, 1862.

Marblehead, Nov. 8, 1862.

I hereby certify that the piece of land this day measured by me for Mr. James J. H. Gregory was one hundred and eighty feet long, and one hundred forty feet wide, and contains twenty-five thousand two hundred feet. Boston Marrow squashes grown on the above land.

JOS. W. LINDSEY.

This certifies that four loads of squashes from Jas. J. H. Gregory weigh 15,143 gross; 5140 tare; 10,003 net pounds.

A. ALLEN, Weigher.

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GEO. B. LORING'S STATEMENT.

MANGEL WURZEL.

The crop of mangel wurzel which I enter for premium was raised on one acre and one-eighth of land. The soil is a heavy clayey loam, has been many years under cultivation, and is a portion of the field, which was thorough drained five years ago. For three years after drainage, it was devoted to grass crops; having been laid down to grass the year previous to draining. Last year it was manured on the sod, twenty-five loads, or a little more than eight cords, to the acre; was plouged with Michigan plough. May 23d harrowed, furrowed and planted to corn, with super-phosphate of lime in the hill. Early in November following it was fall-ploughed.

Early in May of this year it was manured with eight cords of barn-yard manure to the acre, ploughed again, and left until May 20th. It was then ploughed again, harrowed and drilled. Seven cords of manure, a compost of barn-yard manure with sand and muck, were applied in the drills.

The seed was soaked thirty-six hours in water poured hot upon it. The tops of the drills were carefully raked. An implement made of plank four inches wide and three feet long, from the bottom of which projected pins two inches long and an inch and a quarter in thickness, and seven inches apart, and on the top of which was fastened a frame handle, made by nailing narrow stripes of boards, two and one-half feet long, to the ends of the plank, and fastened together at the top by a short strip a foot and a half long—was used for making holes into which the seed was to be dropped. This latter process was also done by hand; and the seed was covered by the hoe. In this way I secured an even crop, and avoided the necessity of thinning, which attends the use of a seed sowing machine. Six men (two making the holes, two dropping the seed and two covering) sowed the piece in one day. The crop was hoed twice, and, late in the season, was once cleared of weeds by

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hand. The seed was imported, and was a mixture of Long Red and Yellow Globe. The crop was by measurement (60 pounds to the bushel) 1800 bushels.

The account with the crop stands as follows:—

Mangel Wurzels.	Dr.
To manure (15 cords at $5),	$75 00
Hauling manure,	8 00
Ploughing twice,	4 00
Harrowing,	1 00
Sowing the seed,	6 00
Two hoeings,	16 00
Clearing,	5 00
Harvesting,	20 00
	$135 00

Cr. by 1800 bushels of roots at 9½ cents per bushel.

The cost of these roots, 9½ cents per bushel, is certainly not extravagant, considering their value as food, and the usual market price. They usually sell for seven dollars per ton, of sixty pounds to the bushel, or about thirty-four bushels to the ton; and at this rate bring twenty cents and a fraction per bushel. The market for them is not large, it is true; but they give ample remuneration for the expense and trouble of raising, in their benefit to milch cows.

According to analysis and experiment, four hundred pounds of mangel wurzels are equivalent to one hundred pounds of English hay. At sixty pounds to the bushel, the crop weighed ninety-six thousand pounds, or forty-eight tons, equivalent to twelve tons of hay, taking the estimate that four tons of mangels are equal to one ton of hay. For the production of milk, I have no doubt that the forty-eight tons of mangels are worth more than the thirteen and one-half tons of hay.

Salem, Nov. 10, 1862.

Salem, Nov. 13, 1862.

This certifies that I have this day measured the lot of land,

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at Dr. Geo. B. Loring's farm, upon which he raised his crop of mangel wurzels, and found it to contain one and one-quarter acres.

CHARLES A. PUTNAN, Surveyor.

Salem, Nov. 14, 1862.

I hereby certify that I gathered sixteen hundred bushels of mangel wurzels from an acre and an eighth of land, entered by George B. Loring for premium, each bushel weighing sixty-one pounds. The weight was ascertained by weighing a single bushel basket full.

ELIAS HAM.

GEO. B. LORING'S STATEMENT.

RUTA BAGAS.

I enter a crop of ruta bagas, raised on two and one-half acres of land, for premium.

The land was an elevated knoll, rising out of a bed of clay, and bounded on one side by salt marsh. The top of the knoll is somewhat gravelly and light; but as it inclines toward the low land surrounding it is a warm loam.

The piece has been in grass for many years, and yielded last year a poor crop—less than half a ton of hay to the acre. It was ploughed June 20th with a Michigan plough, and manure at the rate of fifteen ox-cart loads to the acre was spread upon it and harrowed in with Geddes's harrow. It was then harrowed with a light harrow, and the loose sods turned over with the hoe. Lines were drawn with a marking rake, containing three long heavy teeth twenty inches apart, drawn by one man and held by another. In the small furrows thus

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made, a small quantity of Coe's super-phosphate was sprinkled. The seed was then put in with a sower. The seed used was Skirving's King of the Swedes, imported from England the last spring. The planting was finished in June.

The land was hoed twice, and the plants were thinned out, leaving spaces of six inches in the rows.

The crop was harvested by four men and two teams in four and a half days, ending at noon, Nov. 15th. The amount of the crop is one thousand eight hundred and seventy-six bushels, at sixty pounds to the bushel, and the account is as follows:—

Two and one-half acres of Ruta Bagas,	Dr.
To 12 days' ploughing,	$12 00
3 " seeding,	3 00
24 " hoeing and thinning,	24 00
10 cords of barn-yard manure and hauling,	50 00
1000 pounds of super-phosphate,	20 00
27 days' harvesting,	27 00
	$136 00

Cr. by 1876 bushels of roots, at 7 5-6 cents per bushel (the actual cost as per estimate).

The market price of ruta bagas varies materially in different seasons. Last autumn they sold for fifty cents per barrel. Last spring and this autumn they sell for one dollar per barrel. At these prices it is easy to calculate the cash value of the above crop.

As food for cattle, ruta bagas bear the relation to English hay, which three hundred bears to one hundred. At sixty pounds to the bushel, the crop weighed one hundred and twelve thousand five hundred and sixty pounds, or fifty-six and one-third tons, equivalent to eighteen and seven-ninths tons of hay, taking the estimate that three tons of ruta bagas are equivalent to one ton of hay.

There is no doubt that ruta bagas are easily cultivated, on

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light warm land; and I am satisfied from experience that they are the most useful root the farmer can raise for store and fattening cattle.

Salem, Nov. 15, 1862.

Salem, Nov. 13, 1862.

This certifies that I have this day measured the lot of land, at Dr. Geo. B. Loring's farm, upon which he raised his crop of ruta bagas, and found it to contain two and one-half acres.

I have also marked off, on the south side of the above lot, a parcel containing one acre.

CHARLES A. PUTNAM.

Salem, Nov. 14, 1862.

I hereby certify that I gathered eighteen hundred and seventy-five bushels of ruta bagas from two and one-half acres of land, entered by Geo. B. Loring for premium, each bushel weighing sixty pounds. The weight was estimated by weighing the contents of one bushel basket.

One acre, measured by Mr. Putnam, yielded seven hundred and forty bushels.

ELIAS HAM.

They award the following premiums:—

Hanson Ordway of West Newbury, for onion crop,	$8
S. A. Merrill of Salem, for cabbage crop,	$8
J. J. H. Gregory of Marblehead, for squashes,	$8
Geo. B. Loring of Salem, for mangel wurzel crop,	$8
Geo. B. Loring of Salem, for ruta baga crop,	$8

Respectfully submitted,

A. M. BODWELL,
R. S. ROGERS, } Committee.

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GRAIN AND HAY CROPS.

The Committee on Grain and Hay Crops would make the following report:—

There has been but one application for premium on grain crops that comes within the rules of the Society.

Benjamin P. Ware of Marblehead, raised, as his statement shows, a little over ninety bushels of corn on one acre of ground, for which the Committee recommend that he receive the premium of $10.

It appears from Mr. Ware's statement that on one fifth part of the land there was no manure applied the present season, consequently the crop on the whole lot was not so much as it would have been, had it all been manured—it being a lot of land on which he is trying an experiment for another purpose, the result of which will probably be published in the Transactions of the Society.

Mr. Ware also applied for a premium on his wheat crop, of twenty-five and one-fifteenth bushels to the acre; but as application was not made previous to harvesting the crop, as the rules of the Society require, he is not entitled to the premium.

S. A. Merrill raised the present year, according to his statement, the almost unprecedented crop of thirty and three-eighths bushels of wheat on twenty-three thousand three hundred and one feet of land, making about fifty-six and one-half bushels to the acre; but as the rules of the Society require a crop on not less than one acre of land, and notice to be given previous to harvesting the crop, as before stated, which was not done, the Committee considered it not entitled to premium.

Mr. Merrill also raised, according to his statement, an unusually large crop of rye—forty-nine bushels to the acre, which would be entitled to the premium, were it not for unseasonable notice, as in the other case.

It is hoped that hereafter all applicants for premium will fully inform themselves as to the rules of the Society, and comply with them, that they may severally receive their just

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due without detriment to the Society. It is of vital importance to the Society that all its rules be observed.

Dr. Geo. B. Loring of Salem, has raised an unusual crop of hay, as will be seen by his statement, for which the Committee recommend the premium of $8. The Committee reviewed the premises in September, when the second crop was on the ground, and saw the first crop in the barn. The crop was truly an unusual one.

There seems to be several things combined which caused the uncommon crop.

First. A strong clay soil, well adapted to grass.

Second. It being thoroughly underdrained.

Third. Four years cultivation; as a series of years of cultivation usually benefits the grass crop afterwards.

Fourth. A favorable season.

Lastly, and not least, plenty of manure and good husbandry.

Remarks may be properly made in regard to the general appearance and high cultivation of Dr. Loring's farm; but supposing they will be made by one who is more competent to wield the pen than the one now using it, further remarks will be omitted.

JOSEPH HOW,
I. OSGOOD LORING,
HORACE WARE,
} COMMITTEE.

Nov. 18, 1862.

BENJAMIN P. WARE'S STATEMENT.

The acre of land upon which grew the crop of corn that I offer for your consideration is a dark loam, nine inches deep, resting upon a gravelly subsoil,—is rather light but not leachey

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land. Last year, in April, there were spread upon it four cords of compost manure; it was ploughed in, and it was then sowed with oats. June 10th the oats had attained quite a large growth; they were turned under, and the land sowed with carrots, which failed to grow, on account of the dry weather; and in the last part of July I sowed flat turnips, and they produced a large crop. This year—May 14th—I spread upon four-fifths of the land eight cords of manure—on the other fifth there was no manure used, and it produced in proportion to the manured part, as three is to five. The manure was composed of meadow mud, sea kelp, and barn manure, the whole drenched with night-soil; this manure was applied at different depths (for particulars see experiments with manures). The land was ploughed eight inches deep, and cross ploughed four inches deep, and harrowed; then planted, on the 17th of May, with King Phillip corn, six kernels in a hill, in rows three and one-half feet apart, and the same distance between the hills. The corn was scarified or horse hoed three times, and hand hoed twice, during the season; not a weed was allowed to grow.

October 6th cut it close to the ground, and stooked it up. November 3d, it being dry and in good order, I had the whole crop weighed, and stored in the barn, and husked it out evenings. The cost and value of the crop I estimate as follows:

Whole weight of crop,		15,730 lbs.
Weight of sound ears,	6,721 lbs.	
Weight of unsound ears,	184 "	
Weight of sound and unsound ears,		6,905 "
Weight of stover,		8,825 "

100 pounds of ears shelled 76½ pounds; 1 bushel of shelled corn in measure weighed 57½ pounds, therefore 6,721 pounds of ears divided by 76½-100 equal 5,141½ pounds of shelled corn, and 5,141½ divided by 57½ pounds—weight of 1 bushel—equals 89 4-10 bushels; 184 pounds unsound corn, equal in value 1 to bushel.

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	Cr.	
8,825 lbs. stover, at $6 per ton,	$26 52	
90 4-10 bushels corn, at 95 cents per bushel,	86 38	
		$112 90

	Dr.	
To interest on land,	$12 00	
8 cords manure, at $5,	40 00	
Ploughing twice,	4 00	
Hoeing,	4 00	
Harvesting,	6 00	
		$66 00
Net profit,		$46 90

Marblehead, Nov. 12, 1862.

Marblehead, Nov. 3, 1862

This certifies that five loads of corn from Benj. P. Ware weigh 15,730 pounds net.

A. ALLEN, Weigher.

Marblehead, Nov. 12, 1862.

This certifies that I measured the land upon which grew the crop of corn offered by Benj. P. Ware for premium, and it measures one acre.

H. WARE.

Marblehead, Nov. 12, 1862.

This certifies that I assisted in the culture, harvesting and weighing of Benj. P. Ware's crop of corn, and that the whole weight of sound ears is 6,721 pounds; of unsound ears is 184 pounds; and that 100 pounds of ears made 76½ pounds of shelled corn; and that a measured bushel of shelled corn weighed 57½ pounds.

JOHN CONROY.

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STATEMENT OF GEO. B. LORING.

The hay crop which I enter for premium was raised on four and three-eighth acres of land; the measurement being taken from an accurately surveyed map of my farm.

The soil is heavy and clayey. Five years ago it was thorough-drained; was ploughed at that time, in the autumn; having yielded a small crop of poor grasses the summer previous. Since draining it has borne one crop of corn, two crops of roots, one crop of barley. The barley was sown in the spring of 1861, and yielded fifty bushels to the acre; it was two-rowed. With the barley was sown half a bushel of herdsgrass, half a bushel of red-top and ten pounds of clover to the acre. The grass seed was harrowed in with a light harrow and heavily rolled. The barley was harvested in August; and I cut the same season fifteen hundred pounds of clover hay to the acre.

I found this spring that the grass was somewhat winter-killed—the clover being entirely destroyed in many places. As the season went on, however, the herdsgrass came into the vacant places, and the growth of grass was very luxuriant.

The first crop was cut in the middle of July, and amounted, by measurement, to seventeen tons and one-half.

The second crop was cut in the middle of September, and amounted, by measurement, to nine and one-half tons. The whole amount of hay raised on the four and one-eighth acres is twenty-seven tons.

It was impossible to weigh the crop; and in making the estimate of the weight, the solid feet of the mows have been divided by seven hundred, as the divisor most applicable to hay recently packed.

The land had been heavily manured for the corn and root crops that had been raised upon it.

Salem, Nov. 7, 1862.

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STATEMENT OF BENJAMIN P. WARE.

The land upon which was grown the crop of wheat that I offer for premium, is a dark loam, nine inches deep, resting upon a gravelly subsoil, is nearly level, not subject to suffer by drought or excessive wet; and measures one acre. Last year it was planted with corn, and manured with six and one-half cords of good compost manure; and produced a good crop of corn; this year there was no manure of any kind used.

April 27th I ploughed fine, eight inches deep; then sowed upon the furrow one and one-half bushels of spring wheat, after soaking it two hours in strong brine, and harrowed it in; then dragged the ground smooth.

August 12th cradled and stooked it up. September 3d it being dry and in good order, I had the unthreshed grain weighed and stored in the barn; had it threshed immediately, after the grain had lain in the chaff for ten days, I winnowed and weighed the grain, which amounted to 1,504 pounds. Allowing 60 pounds per bushel, it yielded 25 1-15 bushels of plump, handsome wheat—a sample of which was shown at the exhibition hall, September 29th. 1,504 pounds of grain deducted from 3,405 pounds, the weight of unthreshed grain, leaves 1,901 pounds of straw. As the grain was cradled very high, I cut the stubble with a mowing machine, that it might not interfere with mowing the grass the next year, which yielded a large half ton of good straw for bedding; and in showing the products of the crop it should be added to the threshed straw. The cost and value of the crop I estimate as ollows :—

	Dr.	
To interest on land,	$12 00	
Ploughing "	2 00	
Harrowing and sowing,	1 50	
1 1-2 bushels of seed,	3 00	
Cradling and binding,	2 50	
To threshing and winnowing,	4 00	
		$25 00

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	Cr.	
By 25 1-2 bushels of wheat, at $2,	$50 13	
1 1-2 tons of straw, at $8,	12 00	
		$62 13
		25 00
Net profit,		$37 13

Marblehead, Nov. 12, 1862.

Marblehead, Sept. 3, 1862.

This certifies that 5 loads of wheat from Benj. P. Ware weigh 3,405 pounds net.

A. ALLEN, Weigher.

Marblehead, Nov. 12, 1862.

This certifies that I measured the land upon which grew the crop of wheat offered for premium by Benj. P. Ware, and that it measures one acre.

H. WARE.

Marblehead, Nov. 12, 1862.

This certifies that I assisted in harvesting, threshing, cleaning up and weighing Benj. P. Ware's crop of wheat, and that it weighed 1,504 pounds of clean grain.

MATHEW GILLIGAN.

STATEMENT OF S. A. MERRILL.

I submit the following statement of a crop of wheat that I have raised this season upon a piece of land measuring 23,301 feet:—

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Last April, about the 25th, I ploughed the land, and sowed two bushels of wheat, well washed and mixed with a peck of wood ashes; after sowing I harrowed and rolled well. The soil was a clayey loam, and had been planted two years—the last year with mangel wurzels, producing about thirty tons to the acre.

This crop of wheat I harvested in August, and threshed in October. The yield was 30 3-8 bushels of wheat, and 1½ tons of straw.

Cost of crop:

Ploughing,	$2 50	
2 bushels of seed,	4 00	
Sowing and harrowing,	1 00	
Harvesting,	4 00	
Threshing and cleaning,	4 00	
Rent of land,	5 00	
		$20 50

Value of crop:

30 3-8 bushels of wheat, at $2,	$60 37	
1 1-2 tons of straw, at $10,	15 00	
		$75 37

Net profit, $54.87,

Land surveyed by Thomas Cotton.

Salem, Nov. 6, 1862.

STATEMENT OF S. A. MERRILL.

I submit the following statement of a grain crop:—

The first week in May last I ploughed a piece of ground

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measuring one acre. The ground was a sort of clayey loam, which had been planted for two years—last year with corn and beets, yielding a fair crop. I sowed two bushels of rye and seeded it with grass seed—twelve quarts to the acre. Harvested the same in August, and threshed it in October. The yield was 49 bushels of fine, clean grain, and had two tons of straw.

Cost of crop:

Ploughing,	$3 00	
2 bushels of seed,	1 80	
Sowing and harrowing,	1 50	
Reaping,	3 00	
Threshing.	4 00	
Rent of land,	10 00	
		$23 30

Value of crop:

49 bushels of rye, at 92 cents,	$45 08	
2 tons of straw, at $10,	20 00	
		$65 08

Net profit, $41.78.

Land surveyed by Thomas Cotton.

Salem, Nov. 6, 1862.

MANURES.

The Committee, in making their report, would again express their great obligations to Richard S. Rogers, for giving the results of another year's experience with the different fertilizers used by him for top-dressing grass land. His statement will be found to confirm fully the testimony of his experiments of

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the two preceding years in favor of green cow manure. Our farmers may be slow to use such manure for this purpose, chiefly because the practice is so different from that which they have heretofore followed. It may seem to them almost like a waste of manure to apply it green as a top-dressing; but these are the facts, proved by an experiment most carefully conducted, and extending through three different seasons. We commend these facts to all farmers who are not wedded to old customs merely because they are old—to all who are not afraid of what their neighbors may say or think, when they diverge a little from the beaten path. The Committee would have recommended a premium to Mr. Rogers for these experiments, but he wished not to be considered a competitor for it.

For the premiums for the best conducted experiments in the application of manures, proposed by the Society in 1860, in accordance with instructions from the State Board of Agriculture, and to be made three successive years, there have been two entries, one by Nathan W. Brown, on the Society's farm in Topsfield, and the other by Benjamin P. Ware of Marblehead. The account of the experiment by Mr. Brown for the first two years will be found in the Reports on the Treadwell Farm for the years 1860 and 1861. The crop of grass this year on the land upon which the experiment was made was found to be so light, owing probably to the inferior quality of the manure applied at first, that there seemed to be no appreciable difference in the produce of each of the five lots. It was therefore concluded to abandon this experiment, and trust for better results to those begun in 1861 and 1862.

Mr. Ware has this year completed the experiment begun by him in 1860, thus complying with the chief condition upon which the premiums were to be awarded. We annex the several statements for the three years, remarking that each was submitted to the Committee at the time it bears date; and was accompanied by a certificate of the weight of the crop.

In the third and last statement Mr. Ware has drawn such general conclusions as the experiment would seem to warrant.

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Other and perhaps more satisfactory inferences may be arrived at by the Massachusetts Society for the Promotion of Agriculture, when they shall have the statements of the large number of experiments made in different parts of the State; but we hazard the opinion that among them all no one will be found to be more carefully and skilfully conducted than that by Mr. Ware. We award to him the first premium of twenty-five dollars.

For the Committee,

ALLEN W. DODGE.
LEWIS ALLEN,

FIRST STATEMENT OF BENJAMIN P. WARE.

The land selected for the experiment with manures had lain in grass for ten years previous to August, 1859, when it was ploughed up.

The surface soil is a dark loam ten inches deep, resting upon a compact gravelly subsoil, retentive of manure; not subject to suffer from drouth or excessive wet; it is level; free from rocks or other obstructions, and is considered of superior quality for general cultivation.

There had been but little rain last spring, and on the 16th of April the land was in good condition for ploughing, it being sufficiently dry, and the sod (from breaking up the previous August) pretty well rotted.

It measures six rods wide by ten rods long, which I divided into six equal lots, each one rod wide and ten rods long—making ten square rods of land in each lot. Upon lot No. 1, I spread evenly four and one-half feet of manure (at the rate of

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nine cords per acre), composted from equal parts of peat mud, sea manure and horse manure, all forked over together three times, and allowed to ferment each time. I then ploughed (April 16th) the whole land eight inches deep, then harrowed very thoroughly, until the sod was well pulverized.

April 17th lot No. 2 was spread with the same amount of manure of the same quality, and the whole land cross ploughed four inches deep. Then lot No. 3 was manured in the same manner as lots No. 1 and 2, and the whole land harrowed thoroughly. April 18th the whole land was furrowed four inches deep, and three and one-half feet apart; and lot No. 6 was manured in the drill, with the same amount and quality as the previous lots. I then planted the whole land with Jackson White potatoes, of small, but not the smallest, size, placing them whole, ten inches apart, in the drills.

Then spread upon lot No. 4 manure as upon the other lots, and allowing it to remain upon the surface; while lot No. 5 had no manure at all.

I am aware that the experiment of lot No. 6 is not required by the Society; but it being the common way of applying manure for potatoes in this vicinity, I was induced to extend the experiment for my own gratification; and thinking others might be interested by the comparison, I offer the result of the whole.

The first rain fell, after planting, May 19th, the land being very dry until then. The potatoes were ploughed and hoed three times before the middle of July. Upon the 20th of July the potato blight struck the tops, but the crop was so far advanced that they did not rot but little. The total amount was reduced somewhat, but I think not very much. The whole crop was harvested October 31st; the result of which may be found in the annexed table, together with a brief synopsis of the weather during the season.

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	Large.	Small.	Total.
Lot No. 1 produced	700 lbs.	292 lbs.	992 lbs.
" 2 "	797 "	347 "	1134 "
" 3 "	635 "	305 "	940 "
" 4 "	690 "	357 "	1047 "
" 5 "	580 "	215 "	795 "
" 6 "	630 "	265 "	895 "

SYNOPSIS OF THE WEATHER.

	First Third.	*Second Third.*	*Last Third.*
APRIL.....	Moist.	Dry.	Very dry
MAY.....	Very dry.	Very dry.	Moist.
JUNE.....	Moist.	Moist.	Moist.
JULY.....	Wet.	Wet.	Moist.
AUGUST.....	Moist.	Moist.	Wet.
SEPTEMBER.	Wet.	Moist.	Wet.

Marblehead, Dec. 1, 1860.

SECOND STATEMENT OF BENJAMIN P. WARE.

Upon the 20th of April, the land—a description of which may be found in my last year's statement—being sufficiently dry, I ploughed it eight inches deep, and then harrowed it. May 30th I cross ploughed, harrowed and dragged it, which left the land in good condition for the seed. June 1st I sowed with Orange Globe mangolds, in drills twenty inches apart—ten drills in each lot—using no manure upon any of the five lots. I propose to continue the experiment upon lot No. 6 by the spreading upon the furrows, after the cross ploughing, fine compost manure, composed of meadow mud, sea kelp and stable manure, of equal parts, the whole drenched with night

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soil, and forked over several times, until well mixed and pulverized—at the rate of nine cords per acre—which was harrowed in. In all other respects this lot was cultivated precisely as the other five, hoping by this experiment to prove the profit or loss of the annual use of a liberal quantity of manure in comparison with none at all, or an application once in three years.

The crop was hoed three times, and weeded by hand twice, during the season. At the second weeding the plants were thinned to six inches, and all vacancies were filled by transplanting.

October 29th the crop was pulled, topped and thrown in heaps, where it remained one day to dry before weighing.

				[per acre.
Lot No. 1 produced	3,170 lbs.,	at the rate of	25 tons,	720 lbs.
" 2 "	3,160 "	" "	24 "	1,560 "
" 3 "	3,200 "	" "	25 "	1,200 "
" 4 "	2,810 "	" "	22 "	960 "
" 5 "	2,110 "	" "	16 "	1,860 "
" 6 "	4,500 "	" "	36 "	

Thus showing a balance in favor of lot No. 6, as compared with lot No. 5—where no manure was applied last year—of 19 tons, 140 pounds per acre, which, at $8 per ton, the market value this year—much less than last or many previous years—would amount to $152 56

Deduct value of 9 cords of manure, at $5, 45 00

Net profit in favor of the manure for this year, $107 56

The effects of manure upon the second year's crop may be seen by deducting the weight of the crop No. 5 from the crop of No. 1, which is 8 tons, 860 pounds, at $8, 67 44

Added to this year's profit, makes a total of, $175 00

In favor of the liberal use of manure upon one acre, against using none.

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A SYNOPSIS OF THE WEATHER.

	First Third.	*Second Third.*	*Last Third.*
MAY.....	Moist.	Dry.	Moist.
JUNE.....	Moist.	Dry.	Dry.
JULY.....	Very dry.	Moist.	Moist.
AUGUST.....	Moist.	Moist.	Moist.
SEPTEMBER.	Dry.	Dry.	Dry.

Marblehead, Nov. 12, 1861.

THIRD YEAR'S STATEMENT OF BENJ. P. WARE.

In continuing the experiment on the application of manure, commenced 1860, May 1st, 1862, I spread upon lot No. 6, at the rate of nine cords per acre, manure composted from meadow mud, sea kelp and barn manure, the whole drenched with night soil. I used no manure of any kind upon any of the other lots; then ploughed the whole eight inches deep, then harrowed it.

May 29th cross ploughed eight inches deep; harrowed and dragged the whole of the lots.

May 30th sowed Orange carrot seed, at the rate of one pound to the acre. The carrots were truckle-hoed three times, and hand weeded twice, during the season, which kept them clean of weeds.

November 14th harvested the crop, which resulted as follows:—

		lbs.		tons.	lbs.	
Lot No. 1	produced	2,715,	at the rate of	21,	1,440,	per acre.
" 2	"	2,660,	"	21,	560,	"
" 3	"	2,950,	"	23,	1,200,	"
" 4	"	2,690,	"	21,	1,040,	"
" 5	"	2,755,	"	22,	80,	"
" 6	"	3,220,	"	25,	1,520,	"

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The important facts that seem to be established by the result of this experiment are—

First. That for potatoes it is better to spread the manure, and plough it in four inches, than any other depth, or to applying the manure in the furrow and putting the seed on it—the reason of which I think is that all the growth of the potato plant and of the new tubers is above the seed planted; hence manure placed below the seed is quite or nearly out of the natural reach of the plant; but let the manure be placed above the seed, and the growth of rootlets and tubers is among the enriched soil; the plant draws its nourishment directly from it; and at every hoeing the enriched soil is thrown directly about the plant, which causes new rootlets and tubers to put forth.

Secondly. That one-third of the virtue of manure is retained in the ground after a potato crop for the next year's crop. For a crop of mangolds, and probably other gross feeding plants, the advantage of heavy manuring over no manure is over one hundred per cent, or in other words a crop without manure may not pay expenses, when a crop highly manured would be very profitable.

Thirdly. That there is no perceptible virtue of manure left in the land the third year for a crop of carrots, though I think it would prove otherwise with some other crops; and that there is no advantage in high manuring, shown by this experiment, for a crop of carrots, as the increase in the crop is comparatively small, although the growth of tops was very much larger. I conclude that carrots exhaust land much less than most other crops, hence the superior condition of land after carrots for succeeding crops the next year.

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A SYNOPSIS OF THE WEATHER.

	First Third.	*Second Third.*	*Last Third.*
MAY.....	Dry.	Dry.	Dry.
JUNE.....	Moist.	Dry.	Moist.
JULY.....	Moist.	Moist.	Moist.
AUGUST....	Moist.	Moist.	Moist.
SEPTEMBER.	Dry.	Moist.	Dry.

Marblehead, Nov. 14, 1862.

STATEMENT OF RICHARD S. ROGERS.

Having completed my third and last series of experiments on "Top Dressing of Grass Lands," I now propose to give the results of the present year; premising that all the stakes and bounds remain as originally marked out at first; that no additional top dressing of any kind has been added to the lots; *each* lot being 250 by 45 feet, as mentioned in each former report; and in mowing and weighing the hay the most careful attention was given.

The result of the first and second crops, which were cut in July and September of the present year, were as follows:—

	1st crop.	2d crop.	aggregate.	
No. 1,	700 lbs.	265 lbs.	965 lbs.	Compost.
" 2,	900 "	290 "	1,190 "	Leached ashes.
" 3,	1,050 "	300 "	1,350 "	Green cow manure.
" 4,	950 "	280 "	1,230 "	Dry wood ashes.
" 5,	450 "	100 "	550 "	Peruvian guano.
	4,050 lbs.	1,235 lbs.	5,285 lbs.	

I now take the aggregate of the three consecutive years, and

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show the production of each fertilized lot as named, in adding the whole of the same together, in order to show the crop of hay from each, and which has so far proved best and most reliable:—

For 1860, when compost was used, produced		1,170 lbs.
1861,	" "	1,090 "
1862,	" "	965 "
		3,225 lbs.
For 1860, when leached ashes was used, produced		1,120 lbs.
1861,	" "	1,400 "
1862,	" "	1,190 "
		3,710 lbs.
For 1860, green cow manure used, produced		1,600 lbs.
" 1861,	" "	1,750 "
" 1862,	" "	1,350 "
		4,700 lbs.
For 1860, when dry wood ashes was used, produced		1,450 lbs.
" 1861,	" "	1,800 "
" 1862,	" "	1,230 "
		4,570 lbs.
For 1860, when Peruvian guano was used, produced		1,670 lbs.
" 1861,	" "	870 "
" 1862,	" "	550 "
		3,090 lbs.

Perhaps a recapitulation may show more distinctly the grades of fertilization, in the following:—

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The green cow manure produced		4,760 lbs.
" Dry wood ashes	"	4,570 "
" Leached "	"	3,710 "
" Compost manure	"	3,225 "
" Peruvian guano	"	3,090 "
		19,295 lbs.

Or 9 1295-2000 tons.

The foregoing experiments, when commenced, were not intended for publicity. I was induced to offer the results to the Society at the solicitation of several persons who had witnessed the operations in the field. Should they prove at all interesting, or of any utility to the farmer, I shall be amply repaid in the end, as I myself may be in hereafter knowing practically the best fertilizers to be used for the renovation of grass lands, or sward partially run out or otherwise.

From the remarks in my former reports, of 1860 and 1861, they will show the importance, in my opinion, of knowing what can best be done to promote the interests, and encourage the farmers in raising one of the most profitable as well as valuable of crops—that of hay.

The farmer of small means is often induced to worry along with an old and worn out sward, whereas had he taken it in time and used upon it but a small portion of his manure, he would have been incalculably remunerated on seeing a large crop of hay for his reward.

I hope it will not be taken amiss, when I say farmers must drop some of their old-fashioned notions of tilling the ground in this age of improvement, and strike out some new mode of production, where labor and expense can be saved, in making two blades of grass grow where only one was before.

This subject of top dressing reminds me of a little incident that happened while I was employed on my *first* experiment in top dressing. An intelligent and practical farmer happened to be passing at the time—he asked, "*Why not put that manure under the grass?*" meaning, no doubt, by *turning it over*. I

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replied it would be very expensive, as much manure would be required, as well as much labor; and again, I could not get a *good crop* of hay under four years, as it would require two years to get the ground in good tilth, and two more after being seeded down to obtain a good crop. I promised to let him know the result of my experiment the next year; which I did. It was on a ten acre lot that had not been turned over for *many* years, that I expended upon it about *seventy-five* dollars in manure of a compost kind; which was applied late in the fall of the year. In the following season, in July, I cut (1st crop) nineteen tons; in September following (2d crop) six tons, making twenty-five (25) tons on the *same land* on which I only cut the year before eight and one-half (8½) tons for first and second crops inclusive! Was not this experiment and result sufficient to encourage future top dressing?

Oak Hill, South Danvers, Nov. 1, 1862.

SHEEP.

[The following communication from Mr. Charles Corliss of Haverhill—which was received too late for insertion with the Report on Sheep—will interest those who are engaged in sheep-husbandry; and may perhaps induce others to try the experiment.]

DR. GEORGE B. LORING:

Dear Sir:—Circumstances, unexpected and beyond my control, have so drawn upon my time as to prevent an earlier compliance with your request, "that I would write you in regard to my flock of sheep, my mode of feeding, management, &c." I keep about thirty head, mostly "Cotswolds;"

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would like to keep a larger number, but do not think it best, from the risk of loss by dogs.

The outside fence of my barn-yard—part stone and part wood—is surmounted by a wire net-work fence, three and one-half feet high; here my sheep repose in safety at night, and during the winter; thus rendering them secure a large portion of the time. They are trained to come, at call, to the yard at dark every night, where they have a shed opened to the south, for shelter in wet or cold weather; a constant supply of fresh water and of salt, both *mineral* and *coarse-fine*. A door opens from the shed to a pen in the barn for winter feeding. They are not shut in the barn, except during the lambing season, but are allowed to stay out in the open air even during the coldest nights. No other stock is ever allowed in the yard with them. They are kept quiet at all times; are tame, so as to feed from the hand, and willingly allow themselves to be handled. For a few weeks previous to and during the breeding season they are fed, just before night, with oats, about one pint each per day for six or eight weeks. The change from grass to hay and vice versa is gradual. During the winter they are fed regularly twice a day, viz: from 7 to 9½, and from 3 to 5½. The intervals allowed between are about right for sleeping and chewing the cud. Feeding often has a tendency to make them restless and uneasy. As large a variety of food is given as possible—hay of different kinds, green oats cut for fodder, salt hay, a few roots on warm days, &c., &c. They have no grain except as above, all that is given them is to be eaten up clean. If there is any left, thay are not forced to eat it, but it is taken away and less fed next time. Neat stock and horses are fond of sheep orts in small quantities. My ewes go with young 148 to 150 days. Lambs come in March and April. The ewes before lambing are provided with a warm, dry, well-bedded pen, and "all is well."

The young lambs, "each a little faithful copy of its sire," soon learn to help themselves. No change in feeding is made, except to feed often for a few days. Warm water is given the

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ewe for her first drink. The lambs, when about three week old, are provided with a crib, to which they have access through a door too small for their dams. This crib is kept supplied with oats and second crop clover, of which they soon learn to eat freely. The milk of the ewes is also now increased by feeding roots, clover, hay, &c. When the lambs are about six weeks old, their tails are docked at the joint, about one and one half inches from the body.

My sheep are shorn in May, and sometimes again in August. They are not washed before shearing. After shearing they are washed several times during the warm weather. Their hoofs, when grown long, are pared. Fetters, bells, and other encumbrances are never used. The only thing allowed is a small split steel ring in the ear, with a copper label attached having the number of the ewe stamped thereon. The ewes are numbered, and the number is not repeated. The bucks are named.

In regard to the weight of my ewes and of their fleeces I can make no accurate statement; having seldom troubled myself about it. Full one year fleeces weigh about eight to ten pounds unwashed, but clear and white. If the shape, qualities, and disposition are right, I pay but little regard to size, unless extreme. I want none of my ewes to weigh less than one hundred or more than one hundred and fifty pounds.

That sheep properly managed pay, there can be no doubt; but as to the exact profit I will not venture a statement. The improvement of the farm on which they are kept is an item of no small consideration.

Of diseases and other troubles to which sheep are liable, such as scab, foot-rot, stretches, ticks, lice, and being poisoned by eating "kill-lamb," with which my farm abounds, I have had, I think I may say, considerable experience; yet all of these difficulties I have met and conquered, so that now they cause me but little uneasiness; being fully pursuaded that they can be successfully treated if taken in season.

Great care is taken in the selection and management of the bucks; for upon them the future character of the flock in a

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great measure depends. They are not allowed to be with the ewes at any time, except during the breeding season, but are provided with an enclosure near the house, securely fenced, containing shelter, water, shade trees, salt, feeding trough, &c. They are taught to associate with and to receive the attentions of the members of the family, and others, and are always kindly treated and well cared for.

I regard sheep as the pleasantest as well as the most profitable stock kept on the farm. There is no quarreling and fighting, no chasing of each other, no striving for the mastery, as among neat stock, swine, &c., no exhibition of ill-temper or viciousness; all are peaceable and friendly, manifesting a fondness and good-will towards each other, not common in any other collection of equal numbers of quadrupeds or bipeds. To the person who understands their nature and disposition, there is no animal more easily managed, or that yields a readier obedience to his wishes; and I can but hope that their number may be largely increased throughout our land.

Hoping that at our future "Shows" a larger number, and of the different breeds—Merino, Downs, Cotswolds, &c., &c.—of sheep will be exhibited.

I remain

Very truly yours,

CHARLES CORLISS.

Poplar Lawn, Haverhill, Nov. 18, 1862.

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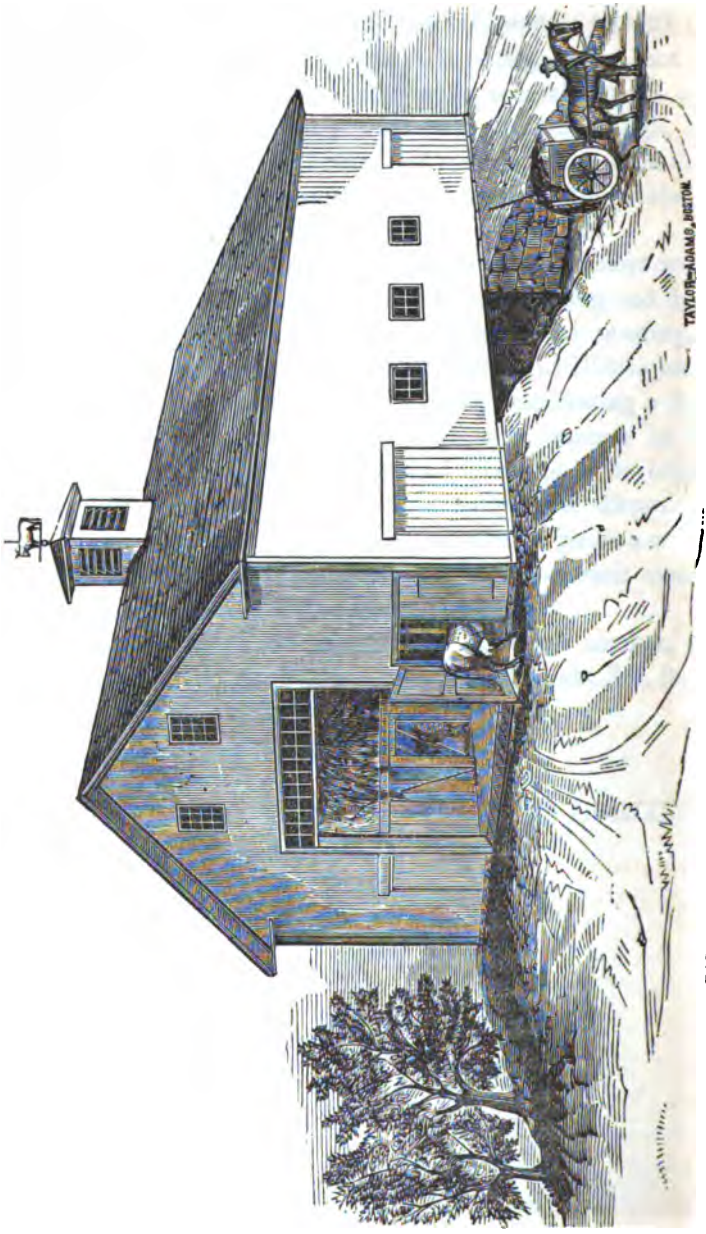

BARN OF THE ESSEX AGRICULTURAL SOCIETY AT THE TREADWELL FARM.

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TREADWELL FARM.

The Committee on the Treadwell Farm would respectfully make the following report:—

In accordance with the votes passed by the Trustees and Society, a new barn has been erected on the farm, at a cost of twelve hundred dollars, above the underpinning—Mr. Brown doing the excavation and stone work for the cellar at his own cost; the barn having been built on a contract by Mr. John H. Potter of Topsfield—all of which has been performed to the entire satisfaction of the Committee.

The report of the Building Committee is hereto annexed.

In consequence of the attention which Mr. Brown has been obliged to give the building of the barn, the farm at large has not had quite as much attention as usual; but still from the increased amount of fertilizing products arising from the excavation of the cellar—the new barn occupying the site of the old—the farm will receive no detriment.

The report of Mr. Brown is hereto appended, respecting the several experiments instituted by the Committee. They appear to be in favorable progress; and from the additional manure required and brought on for these experiments, the farm is progressing to a much improved condition.

All of which is respectfully submitted.

R. A. MERRIAM,
ALLEN W. DODGE.
RICHARD S. FAY,
RICHARD S. ROGERS,
DANIEL ADAMS,
GEO. B. LORING,
JOHN WHITTREDGE,
JOSEPH HOW,
CHAS. P. PRESTON,
} COMMITTEE.

Topsfield, Nov. 17, 1862.

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REPORT OF BUILDING COMMITTEE.

The Committee appointed to erect a barn upon the Treadwell Farm would respectfully report :—

In laying out a plan for the barn, they were governed by a desire to construct a convenient, well-proportioned, and economical building, particularly adapted to the wants and the means of a New England farmer. The size of a barn should conform to the extent of the farm, and the mode of cultivation with which it is to be connected. It should be as commodious as possible—so shaped as to furnish the most room in the space assigned it. There should be at the same time no waste of room. The storage in the barn should be easy, and so arranged as to bring the contents as near as possible to the point where they are to be used. The scaffolds and bays should be easy of access ; so that the laborer shall not be compelled to lift the hay to too great a height, or to carry it a great distance. The hay should be so situated as to be easily fed to the cattle. A barn, therefore, with two drive-ways, one at each end, the passage being across the building, is inconvenient; for hay is not easily stored between these passage-ways, and the way from one end of the barn to the other is dark and narrow. A barn, too, which has a scaffold permanently fixed over the drive-way, as is often seen, is not convenient, and is wasteful of room ; for it is very difficult to pitch hay through a scuttle many feet overhead, and all the room below the scaffold, and above the height of the mow-beams is lost. A barn situated on a hillside, so arranged as to have drive-way immediately under the roof, with deep bays on each side, is not economical either of room or of money. The room below the drive-way is lost, the frame is expensive, and the different parts of the barn are inconveniently removed from each other.

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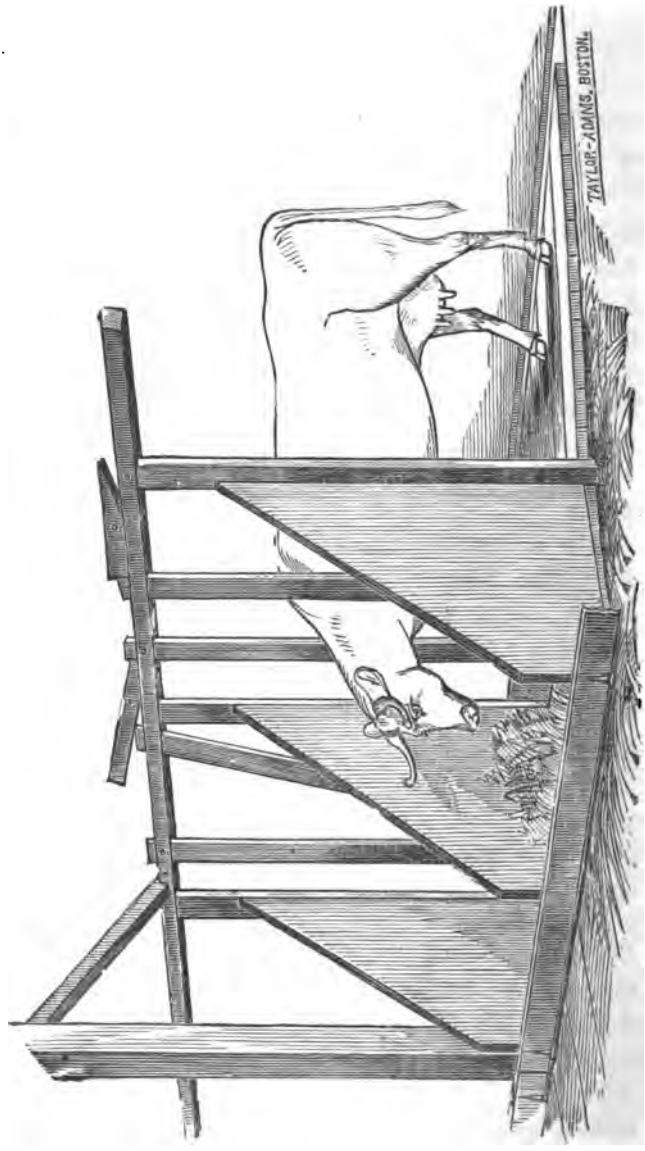

DRAWING OF STANCHIONS.

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It seems to the Committee that a simple building, about forty feet wide, and of such length as is required, with a drive-way from one end to the other, is the most convenient design yet adopted. With this plan, the cattle may be furnished with roomy stalls, and they may stand near the hay. Room is furnished for closets, stables, &c., in convenient localities. The space over the drive-way can be occupied with a moveable scaffold if desired. The building can easily be aired; and the frame of such a building can be constructed with ease and economy. Under such a building the cellar can be properly arranged so as to accommodate the design of the room above, whether it be for cattle or horses, or for the easy storing of roots; a cellar being, in the minds of the Committee, as important to a well-ordered barn as to a house.

These views governed the Committee in their choice of a plan for the building. They proposed to have a cellar easy of access for teams; convenient for making manure; and provided with a root cellar, into which roots can be tipped from the cart through a trap-door in the passage-way of the barn, and the labor of carrying in baskets be thus avoided. They endeavored to divide the space in the barn into comfortable arrangements for the cattle and horses, and convenient places for the hay, straw, &c. And they endeavored, also, to erect a building which would be pleasing to the eye.

The sketch on page 160, drawn by Mr. Emmerton, of the firm of Foster & Emmerton, architects, Salem, Mass., will give an idea of the appearance of the building.

The cellar, which was built by N. W. Brown, the tenant of the farm, extends under the entire building. It has a wide opening under the front long side of the barn, and a narrow one in the rear north-west corner, for the convenience of the fields lying in that direction. It is seven and a half feet in depth; has a substantial wall; and a small portion of it in the south-west corner is set apart for a root cellar.

The stalls for the horses are located in the two bands on the left of the front doors. They are provided with a passage-

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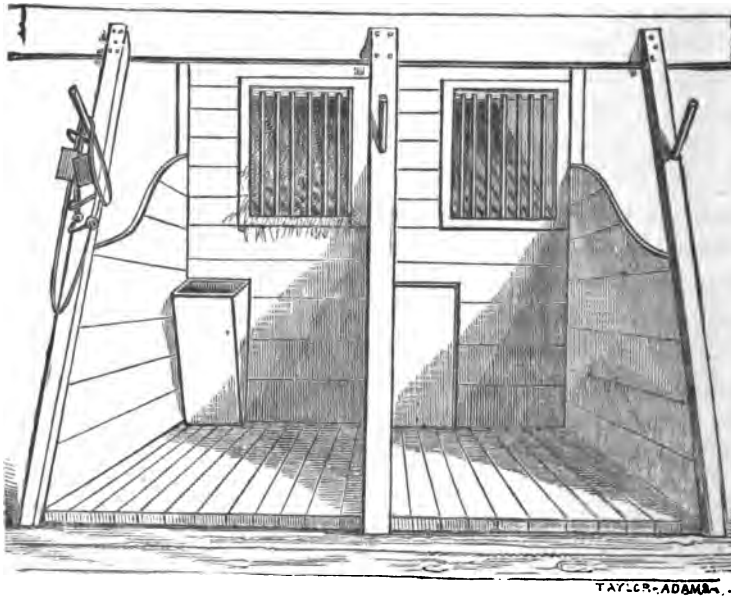
way in front, three and one-half feet wide into which the moveable feed-boxes, hereafter illustrated, may swing, and where grain chests can be kept. In the upper part of this passage-way are the rears of the hay racks.

The stalls themselves are provided with racks flush with the front wall, as shown in the accompanying sketch, and with moveable boxes, as also shown. The floors are laid with two inch plank, sawed in strips four inches wide, and separated three-fourths of an inch, for drainage of the water.



SKETCH OF HORSE STALLS.

The cattle are tied with the common stancheon, as the safest and most convenient method. The flooring under the cattle is laid crosswise of the barn; and for the oxen it is laid open as for the horses. A manure gutter, thirteen inches wide, is provided with long trap-doors, hung on hinges. The feeding space in front of the cattle is divided by plank partitions to

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keep the heads of the cattle separate; the floor of the space is raised three inches from the barn floor; and in front of the spaces is a plank eight inches wide, hung at the bottom so as to fall off an inch when let down, in order to avoid clogging, and shutting in between the posts, so as to prevent the food of the cattle from being scattered over the floor. A wooden button on the posts holds each end of this plank in place. This furnishes an easy mode of cleaning the feed boxes. The drawing on page 164, by Mr. Emmerton, gives a correct view of the arrangement—the most convenient the Committee could devise.

The working plans of the frame &c. have been omitted as occupying too much room.

The contract for building was made on the 6th of March, 1862, with Mr. John H. Potter of Topsfield, under the accompanying specifications and agreement:—

SPECIFICATIONS FOR A BARN ON THE TREADWELL FARM IN TOPSFIELD, FOR THE ESSEX AGRICULTURAL SOCIETY.

Size of Barn.—60 feet in length by 40 feet in width; with 17 feet post.

Roof.—Ten inches over one-third pitch.

Projection.—Coving to project at eves and ends eighteen inches, as per plan annexed.

Framing.—The timber and joists of the frame to be as per memorandum annexed, including quality and size; to be framed in five bays of twelve feet each; the floor joists in the lower floor to be framed as per plan; the studding to be framed in not more than twenty inches from center; the small rafters to be framed in not more than twenty-two inches from center; the frame to be pinned with white oak pins not less than one inch in size; and the scaffold girths to have two pins to each tenant, and to be joined into the posts at the lower corner three-quarters of an inch; the scaffold joists to be framed in not more than twenty inches from the center; the scaffold enter-ties to be fastened with iron joint-bolts to the inner and outer posts; ex-

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tra posts to be framed in at each end, for the sliding way of the doors, said posts to be secured at the top by suitable iron bolts and boxes made above the scaffold for the doors to slide in; the large rafters to be fastened with foot-bolts of suitable size, with nuts to the same.

Covering.—The whole exterior of the building to be covered with good merchantable hemlock boards, well nailed with ten-penny Tremont nails. The roof to be covered with second quality of shaved cedar shingles, to be laid not more than four and one-half inches to the weather, and nailed with Swedes iron nails. The sides to be covered with the first quality of spruce clap-boards, jointed and well butted, and nailed with six-penny Tremont nails. The coving, gutter, and trimmings to be wrought as per plan, from good No. 3 Eastern pine stock.

Cupola.—Not less than five feet square, to be framed into the roof, with ventilating doors and blinds, and pulleys and fastenings to the same; the height, projection, and trimmings as per plan annexed.

Doors and Windows.—The end doors to be of size of opening as per plan; to be framed of two inch pine plank, and covered with narrow clear pine boarding, matched and beaded—made in one or two parts, as the Committee may direct—and hung at the top with rollers not less than eight inches in diameter. Also a door at each end opening into the tie-up of the cattle, eight feet in width, to be divided in the center, framed and covered in the same manner as the large doors, and hung with outside hinges, and to be furnished with suitable bolts and fastenings. Five other doors to be furnished, to be located according to the directions of the Committee, and suitable bolts and fastenings to the same.

Eight windows, of nine by twelve glass, to be located as directed by the Committee; also, top-lights over the great doors, two lights of nine by twelve glass in width, extending the width of the door-way; also, a window in each gable end, of nine by twelve glass, twelve lights.

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Flooring and Scaffolding.—The floor to be laid with hemlock boards and two inch pine plank—that for the drive-way to be of a uniform width of twelve inches. The scaffold floors to be laid with two thicknesses of hemlock boards; all the boarding of the floors to be nailed with ten-penny Tremont nails, and the planking with forty-penny Tremont nails; in all cases pains to be taken in laying the floors to break joints, and to lay the boards and planks as closely as possible.

Inside Finish.—Three stalls for horses, to be built of mill-planed spruce, with crib and hay-rack according to the direction of the Committee, with a suitable partition between the stalls and the barn floor-way, and a sliding door to separate them therefrom; the floor of the stalls to be laid of two inch pine plank, according to the direction of the Committee; stairs to be constructed leading to the scaffold.

Tie-Up for Cattle—to be constructed the length of one side of the barn, with floors, and ties, and trap-doors, according to the direction of the Committee.

Meal Room and Calf Pen—to be constructed according to the direction of the Committee.

Painting.—All the clap-boards to be painted one coat of lead and linseed oil; the trimmings and doors to be painted two coats of first quality lead paint and linseed oil; color, &c., according to the direction of the Committee.

CONTRACT.

An agreement, of two parts, made this 6th day of March, in the year one thousand eight hundred and sixty-two, between Geo. B. Loring, Charles P. Preston, and Royal A. Merriam, a Committee appointed by the Essex Agricultural Society, for the purpose of building a barn on the Treadwell Farm in Topsfield, on the one part, and John H. Potter of Topsfield, on the other part, as follows, viz :—

That I, the said Potter, shall, at my own cost and charges, provide all and every kind of materials and of the best qual-

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ity; also, perform all and every kind of labor required, together with the tools, carting, implements, &c., necessary for a complete finish of a building for the said Committee, on the Treadwell Farm in Topsfield, agreeably to plans and specifications annexed.

The work to be commenced immediately, and to be forwarded with all reasonable despatch, so that it may be completed on or before the 30th day of June, 1862, and so delivered up to the entire satisfaction of said Committee.

In case of any delay on the part of said Potter in providing suitable materials, or in forwarding the works with such despatch as is thought proper by the said Committee, it shall be lawful for the said Committee, after giving three days notice in writing to the said Potter, without effect, to furnish materials and employ workmen to complete the works within the time agreed upon; the amount or amounts of bill or bills incurred thereby for materials and labor to be deducted from the contract amount, or any moneys which may be due to the said Potter.

The said Potter does for his heirs, administrators and assigns hereby promise and agree to and with the said Committee, to well and truly perform all the works of every kind mentioned and contained in the foregoing particulars, and according to the plans prepared and referred to, and subject to the conditions above recited at and for the sum of eleven hundred and twenty-five dollars.

In consideration that the said Potter shall well and truly perform the whole of the foregoing, agreeably and in every respect with the conditions above recited, the said Committee agree to pay, or cause to be paid, to the said Potter the sum of money before mentioned, and in separate payments, as follows, viz:—

When the frame of the barn is raised, $300.

When the barn is boarded, shingled, and the roof made tight, and the sides clap-boarded, $300.

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When the cupola is finished, the trimmings finished, and the inside finished, $300.

And the balance of $225 within thirty days of the time when the whole job is completed, and so delivered up to the entire satisfaction of the said Committee.

In witness whereof the parties have hereunto set their hands, on the day and year above written.

GEO. B. LORING,
CHAS. P. PRESTON, } Committee.
R. A. MERRIAM,

Witness, ARTHUR M. MERRIAM.

JOHN H. POTTER.

The work was done in a thoroughly satisfactory manner by Mr. Potter.

The lumber used by him was as follows:—Square timber for frame, mostly pine, obtained in Boxford, 18,000 feet. The scaffold beams, between the posts, are spruce; joists in the frame, 5,000 feet; hemlock boards, 13,000 feet; spruce for cattle and horse stalls, 2,000 feet; pine for finish, 2,500 feet; shingles, 27,000; spruce clapboards, rough, 4 feet long, 2,500; pine plank for flooring, 5,000 feet.

In addition to the contract price of eleven hundred and twenty-five dollars, the Committee have paid Mr. Potter one hundred and twenty-five dollars and five cents, for removing and repairing a portion of the old barn, and altering the finish of the new one. They have also paid twenty dollars for a weather-vane; six dollars for drawing plans, etc.; and eight dollars for posts to cellar. There remains on hand of the thirteen hundred and twenty-seven dollars appropriated by the Society, a balance of forty-two dollars and seventy cents. It is important that an open shed, costing one hundred dollars, according to Mr. Potter's estimate, should be constructed, running from the new barn to the removed portion of the old

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one; and the Committee would recommend that an appropriation of fifty dollars be made for this purpose.

Respectfully submitted,

GEO. B. LORING,
R. A. MERRIAM,
CHAS. P. PRESTON,
} COMMITTEE.

Report of the Experiment on the Application of Manures on the Treadwell Farm, commenced in the year 1862, competing for the Premium, as offered by the Massachusetts Society, and also by the Essex Agricultural Society.

Land selected, level.

Amount of land, 2½ acres.

Quality of land, dry, not retentive of manure.

Crop of 1861, grass.

No manure in 1861.

Kind of manure used in 1862, stable manure worked over in hog-yard.

Amount, 16 cords.

Depth of first ploughing, 8 inches.

4 cords applied to lot No. 1, and ploughed 8 inches deep the whole field.

4 cords applied to lot No. 2, and cross-ploughed the whole field 4 inches deep.

4 cords applied to lot No. 3, and harrowed the whole field twice.

4 cords applied to lot No. 4, and left exposed on the surface.

No manure to lot No. 5.

1862, May 24 to 28, planted the whole field with potatoes, 3½ feet apart each way.

June 11th cultivated the whole field both ways.

June 16th, 17th and 18, hoed the whole field.

June 23d, cultivated the whole field both ways.

June 30th, cultivated the whole field both ways.

July 5th, cultivated the whole field both ways, and commenced hoeing the second time, finished July 8th.

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August 25th, 26th, and 27th, cleared the ground from weeds.
October 31st, finished harvesting.

	Large.	Small.
The amount of potatoes on Lot No. 1,	23 bu.	42½ bu.
" " " 2,	29 "	50 "
" " " 3,	16 "	46½ "
" " " 4,	14 "	47 "
" " " 5,	11 "	21 "
Total,	93	207

WEATHER REPORT FOR 1862.

	First Third.	*Second Third.*	*Last Third.*
MAY			1,632 in.
JUNE	1,044 in.		1,250 in.
JULY.....	1,632 in.	0,952 in.	1,173 in.
AUGUST	0,510 in.	0,306 in.	
SEPTEMBER.	0,246 in.		0,346 in.

EXPERIMENT COMMENCED IN 1861 CONTINUED.

Land ploughed 4 inches deep.

April 29th, barley sown,	5 bu.
Red top,	3 bu.
Herds grass,	½ bu. and ½ pk.
Clover seed,	15 lbs.

Harvested the 1st of August.

Amount of barley—Lot No. 1,	14 bu.
" " " 2,	13½ bu.
" " " 3,	13 bu.
" " " 4,	13 bu.
" " " 5,	2 bu.
Total,	55½

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Amount of	straw—	Lot No.	1,	780 lbs.
"	"	"	2,	810 lbs.
"	"	"	3,	828 lbs.
"	"	"	4,	905 lbs.
"	"	"	5,	875 lbs.

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Dr. William Sutton, Treasurer, in account with the Essex Agricultural Society. Cr.

1861.			1861.			
October.	To balance of former account	$1471 82	September.	By amount awarded by the Trustees in 1861–2		$836 00
	To receipts of Exhibition in 1861	529 32		By Expenses as follows:		
	To State bounty	600 00		Exhibition in 1861	389 60	
	To Bank Dividends in October, 1861	176 75		Printing	346 62	
November.	To New Members	93 00		Secretary's Salary	100 00	
Jan. 16, '62.	To Treadwell Farm	4 37		Express, Postage, &c	36 64	
April.	To Bank Dividends in April, 1862	191 75		Attendance	1 00	
July.	To Essex Railroad coupons	42 00		Colman Library	33 32	
	To Interest on Notes Received	13 70		Treadwell Farm, for Barn	1200 00	2,107 18
	To Notes Receivable	900 00		By balance to new account		539 53
September.	To Prems. unclaimed, cr. Colman Library	60 00				
		$3,482 71				$3,482 71

FUNDS BELONGING TO THE SOCIETY.

16 shares	Warren Bank, cost	$1595 40	Amount brought up	$8177 84
12 "	Exchange Bank, par	800 00	Deduct amount due Library account	26 68
22 "	Commercial Bank, cost	1471 66		8151 16
7 "	Mercantile Bank, par	700 00	Funds on hand in 1861	8912 62
6 "	Merchants Bank, par	300 00	Difference in 1862	761 46
5 "	Village Bank, reduced to	375 00	This includes $577.49 expended out of sales of Oak Timber, and Permanent Funds, in erection of Barn	577 49
3 "	Salem, " " "	225 00	Loss in 1862, including $125 loss on Village Bank Stock,	183 97
15 "	Danvers, " cost	1471 25	The balance against the Farm, including $1200 paid on account of Barn, to this date is	$1087 22
Essex Railroad Bonds, par		700 00		
Cash on hand as above		539 53		
SALEM, September, 1862.		$8177 84	E. E.	WILLIAM SUTTON, Treasurer.

The undersigned have examined the foregoing account of Receipts and Disbursements by the Treasurer, and also his statement of the Funds belonging to the Society (showing a balance in his hands of $8151.16), and find the same correctly cast and and well vouched.

SALEM, November 17, 1862.

ASAHEL HUNTINGTON, }
E. S. WILLIAMS, } AUDITORS.

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OFFICERS OF THE SOCIETY,

FOR 1862-63.

PRESIDENT.

ALLEN W. DODGE, of Hamilton.

VICE PRESIDENTS.

LEWIS ALLEN, of South Danvers,
JEREMIAH COLMAN, of Newburyport,
DAVID CHOATE, of Essex,
ROYAL A. MERRIAM, of Topsfield.

TREASURER.

WILLIAM SUTTON, of South Danvers.

SECRETARY.

CHARLES P. PRESTON, of Danvers.

HONORARY TRUSTEES.

JAMES H. DUNCAN, of Haverhill,
JOHN W. PROCTOR, of South Danvers,
RICHARD S. FAY, of Lynn,
DANIEL ADAMS, of Newbury.

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TRUSTEES.

JONATHAN BERRY, of Middleton,
ROBERT BROOKHOUSE, JR., of Salem,
WILLIAM COGSWELL, of Bradford,
RICHMOND DOLE, of Georgetown,
FRANCIS DODGE, of Danvers,
THOMAS P. GENTLEE, of Manchester,
JOSEPH HOW, of Methuen,
JOHN M. IVES, of Salem,
JOHN B. JENKINS, of Andover,
JOHN KEELEY, of Haverhill,
JOSEPH KITTREDGE, of North Andover,
CYRUS W. LORD, of Beverly,
GEORGE B. LORING, of Salem,
I. OSGOOD LORING, of North Andover,
LAMBERT MAYNARD, of Bradford,
SAMUEL A. MERRILL, of Salem,
JOSEPH NEWELL, of West Newbury,
JOSIAH NEWHALL, of Lynnfield,
JOSHUA L. NEWHALL, of Newburyport,
WILLIAM OSBORN, of Lynn,
PAUL D. PATCH, of Hamilton,
EDWARD H. PEARCE, of Gloucester,
WILLIAM R. PUTNAM, of Danvers,
JONATHAN F. PHILLIPS, of Swampscott.
CHARLES ROGERS, of West Newbury,
JOHN L. ROSS, of Ipswich,
PAUL TITCOMB, of Newbury,
HOR CE WARE, of Marblehead,
ENOCH S. WILLIAMS, of Newburyport,
ENOCH WOOD, of Boxford.

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The Trustees whose term of service will expire on the day of the annual meeting of the Society in 1863, are:

Robert Brookhouse, Jr.,	Josiah Newhall,
Richmond Dole,	Paul D. Patch,
John M. Ives,	Paul Titcomb,
John B. Jenkins,	Horace Ware,
George B. Loring,	E. S. Williams.

NEW MEMBERS—1862.

Robert Buxton, South Danvers,	Daniel E. Moulton, Georgetown,
Robert L. Brown, W. Newbury,	George B. Martin, Danvers,
Charles Corliss, Haverhill,	Amos P. Pope, Danvers,
George A. Choate, Newburyport,	Gilbert Streeter, Salem,
Charles B. Cogswell, Essex,	John V. Stevens, South Danvers,
Samuel Hutchinson, S. Danvers,	Joseph Smith, Lynnfield,
Edward K. Lee, Essex,	John Swinerton, Danvers.

☞ Any citizen in the County may become a member by paying the sum of three dollars to increase the permanent funds of the Society, and he will receive a certificate of his membership from the Secretary. No fines or assessments are ever imposed. Members are entitled to the free use of the Library and a copy of the Transactions each year. All ordained ministers of the gospel residing in the county, and editors of newspapers, published therein, are entitled to the privileges of the Library.

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LIST OF PREMIUMS, &C.

FAT CATTLE.

Joseph Kittredge, North Andover, 1st premium,	$10 00
Amos M. Follansbee, West Newbury, 2d premium,	8 00
Daniel Carlton, North Andover, 3d premium,	5 00

BULLS.

Richard S. Rogers, Salem, Jersey, premium,	10 00
George B. Loring, Salem, Ayshire, premium,	10 00
Charles Harriman, Groveland, Devon, premium,	10 00
Nathaniel Little, Jr., Newbury, Grade, 1st premium,	10 00
Oliver P. Killam, Boxford, Native, 2d premium,	5 00
Richard Little, Salisbury, Grade, 3d premium, Flint's Book on the Dairy.	

MILCH COWS.

Joseph Newell, West Newbury, Grade, 1st premium,	10 00
Jacob F. Jewett, Georgetown, Grade, 2d premium,	5 00
E. S. Parker, Groveland, Grade, 3d premium, Flint's Book on the Dairy.	
Warren Averill, Ipswich, Native, gratuity, Flint's Book on the Dairy.	

HEIFERS.

E. S. Parker, Groveland, 3 years old Grade, 1st prem.,	7 00

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J. Longfellow, Byfield, 2 years old, Grade, 1st prem., 5 00
Chas. Harriman, Groveland, 2 years old Devon, 2d prem., 4 00
E. S. Parker, Groveland, 2 years old Grade, 3d, premium, Flint's Book on the Dairy.
Jeremiah P. Jones, Georgetown, 2 years old Grade, pre., 5 00
Theron Johnson, North Andover, yearling Grade, 1st pre., 4 00
Joseph Newell, W. Newbury, yearling Grade, 2d pre., 3 00
Eben S. Poor, S. Danvers, yearling Ayrshire, 3d premium, Flint's Book on the Dairy.

CALVES.

J. Longfellow, Byfield, 1st premium, 5 00
Charles Harriman, Groveland, 2d premium, 3 00

WORKING OXEN.

Moses H. Poor, W. Newbury, over 3000 lbs., 1st prem., 10 00
Samuel Longfellow, Newbury, over 3000 lbs., 2d prem., 8 00
A. P. Fuller, N. Andover, under 3000 lbs., 1st prem., 10 00
Joel Wilkins, Danvers, under 3000 lbs., 2d prem., 8 00

STEERS.

Dean Robinson, W. Newbury, 3 years old, 1st prem., 6 00
Alfred Little, Newbury, 3 years old, 2d, premium, 5 00
C. W. Hatch, West Haverhill, 2 years old, 1st prem., 5 00
Joseph Newell, W. Newbury, 2 years old, 2d prem., 4 00
Gibeon Adams, Newbury, yearlings, premium, 3 00

STALLIONS.

George B. Loring, Salem, over 4 years old, 1st prem., 10 00
Loring P. Demsey, Danvers, under 4 yrs. old, 1st prem., 7 00

BROOD MARES.

Richard S. Rogers, Salem, 1st premium, 10 00
Joseph B. Spiller, Haverhill, 2d premium, 8 00
George O. Stevens, North Andover, 3d premium, 6 00

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FARM AND DRAFT HORSES.

John Perkins, South Danvers, 1st premium,	8 00
T. Payson Milton, Rowley, 2d premium,	6 00

COLTS.

George B. Loring, Salem, 4 years old, 1st premium,	7 00
Nathaniel Little, Jr., Newbury, 4 years old, 2d prem.,	5 00
John Dorman, Georgetown, 3 years old, 1st premium,	6 00
John Swinerton, Danvers, 3 years old, 2d premium,	4 00
Fitch Barteaux, Methuen, 2 years old, 1st premium,	5 00
L. F. Carter, Georgetown, 2 years old, 2d premium,	3 00

SWINE.

Byron Goodell, South Danvers, boar, 2d premium,	3 00
David Carlton, North Andover, breeding sow, 1st prem.,	5 00
William Foster, North Andover, breeding sow, 2d prem.,	3 00
do. do. weaned pigs, 1st prem.,	5 00
Byron Goodell, South Danvers, weaned pigs, 2d prem.,	3 00

SHEEP.

J. Z. Gordon, W. Newbury, flock of Leicesters, 1st pre.,	5 00
Dean Robinson, W. Newbury, buck, South Down, 1st pre.,	5 00
Charles Corliss, Haverhill, lot lambs, Cotswolds, 1st pre.,	5 00

PLOUGHING — DOUBLE TEAMS.

J. H. Barker and Wm. Foster, North Andover, Michigan, 1st premium,	7 00
A. P. Fuller, North Andover, common plough, 1st pre.,	10 00
M. H. Poor and A. R. Windship, W. Newbury, common, 2d premium,	9 00
D. S. Goodrich, West Newbury, common, 3d premium,	8 00
Jas. Carey and F. Alley, Marblehead, common, 4th pre.,	7 00
R. T. Jaques and R. S. Bray, Newbury, common, 5th pre.,	6 00
Joseph Goodridge, West Newbury, common, 6th prem.,	5 00

PLOUGHING — SINGLE TEAMS.

Richard T. Jaques, Newbury, 1st premium,	7 00
Andrew Smith, Marblehead, 2d premium,	6 00

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John Reynolds, North Andover, 3d premium,	5 00
Wm. H. Walcott, Danvers, 4th premium,	4 00

PLOUGHING — HORSES.

Spofford and Adams, Georgetown, 2d premium,	7 00

FARM IMPLEMENTS, &c.

George B. Loring, Salem, implements, gratuity,	1 00
R. A. Smith, Newburyport, portable fence, gratuity,	1 00
S. A. Merrill, Salem, hay tedder, gratuity,	1 00
Solomon Spofford, Groveland, farm wagon, &c., gratuity,	1 00
Charles Boynton, Georgetown, York buggy, gratuity,	1 00
J. S. Morse, Rand's corn sheller, gratuity,	1 00
Amos Poor, Jr., West Newbury, various implements, gratuity,	5 00
W. A. Currier, Haverhill, cook stove, gratuity,	1 00
George A. Choate, ditching machine, gratuity,	3 00

BUTTER.

S. L. Ridgway, West Newbury, 1st premium,	8 00
Warren Averill, Ipswich, 2d premium,	6 00
Sarah Holt, Andover, 3d premium,	4 00

CHEESE.

Nathaniel Moody, Newbury, 1st premium,	8 00
William Thurlow, Newbury, 2d premium,	6 00
Daniel Silloway, West Newbury, 3d premium,	4 00

FARMS.

George B. Loring, Salem, 1st premium,	30 00

IMPROVING PASTURE AND WASTE LANDS.

Jonathan Berry, Middleton, 1st premium,	15 00
Charles Nelson, Georgetown, 2d premium,	10 00

GRAIN AND GRASS CROPS.

George B. Loring, Salem, grass crop, premium,	8 00
Benjamin P. Ware, Marblehead, corn, premium,	10 00

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ROOT CROPS.

George B. Loring, Salem, ruta bagas, premium,	8 00
do. do. mangel wurzel, premium,	8 00
Hanson Ordway, West Newbury, onions, premium,	8 00
Samuel A. Merrill, Salem, cabbages, premium,	8 00
J. J. H. Gregory, Marblehead, squashes, premium,	8 00

EXPERIMENT ON MANURES.

Benjamin P. Ware, Marblehead, 1st premium,	25 00

Awarded by the Committee on Poultry,	15 50
" " " Vegetables,	20 50
" " " Fruits,	101 50
" " " Flowers,	19 00
" " " Articles from Leather,	18 00
" " " Counterpanes, Rugs, &c.,	16 25
" " " Fancy Articles, &c.,	54 25
" " " Bread, &c.,	6 00
Total,	$818 00

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RECAPITULATION.

FARMS, &c.

Amount awarded to		Farm,	$30 00	
"	"	Experiment on Manures,	25 00	
"	"	Improved Pasture and Waste Lands,	25 00	
"	"	Ploughing,	81 00	
"	"	Farm Implements, &c.,	15 00	
				$176 00

FARM STOCK.

Amount awarded to		Fat Cattle,	$23 00	
"	"	Bulls,	45 00	
"	"	Milch Cows,	15 00	
"	"	Heifers,	28 00	
"	"	Calves,	8 00	
"	"	Working Oxen,	36 00	
"	"	Steers,	23 00	
"	"	Stallions,	17 00	
"	"	Brood Mares,	24 00	
"	"	Farm and Draft Horses,	14 00	
"	"	Colts,	30 00	
"	"	Swine,	19 00	
"	"	Sheep,	15 00	
"	"	Poultry,	15 50	
				$312 50

FARM PRODUCTS.

Amount awarded to		Corn Crop,	$10 00	
"	"	Cabbages,	8 00	
"	"	Onions,	8 00	
"	"	Mangel Wurzels,	8 00	
"	"	Ruta Bagas,	8 00	
"	"	Grass,	8 00	
"	"	Squashes,	8 00	
"	"	Vegetables,	20 50	
"	"	Fruits,	101 50	
"	"	Flowers,	19 00	
"	"	Butter and Cheese,	36 00	
"	"	Bread, &c.,	6 00	
"	"	All other Objects,	88 50	
				$329 50
		Total,		$818 00

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LIST OF MEMBERS

OF THE

Essex Agricultural Society,

FROM ITS ORGANIZATION IN 1818.

AMESBURY.

*Allen, Jonathan
*Bagley, Valentine
Bailey, Thomas
Binney, William C.
*Challis, Hezekiah
*Challis, Thomas
*Collins, Winthrop
*Davis, William
Evans, John
*French, Jonathan
Goodwin, A. E.
Gunnison, William
Haskell, William H.
*Hoyt, Thomas
*Johnson, William 2d
Jones, Philip
*Long, Nathan
*Lowell, David
†Moore, Appleton
†Morrill, Nathaniel
Morse, John S.
*Nichols, Hezekiah
*Nichols, Stephen
Nichols, Stephen, Jr.
Nichols, William
*Patten, Jacob B.
*Patten, Robert
†Patten, Thomas
*Patten, Willis
Quimby, Thomas W.
*Rowell, Jacob
*Sargent, Ichabod
*Sargent, Josiah
Sargent, J. B.
Sargent, Orlando
Sargent, Patten
*Sargent, Stephen, Jr.
Sargent, Willis
Sawyer, Aaron
Sawyer, Thomas C.
*Sweet, William
Tukesbury, D. M.
*Webster, Enoch
*Weed, Amos
*Weed, Daniel
*Weed, Thomas
*Winkley, J. F.
*Worthen, Ezra

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ANDOVER.

Abbott, Amos
*Abbott, Asa
Abbott, Asa A.
*Abbott, Ezra
*Abbott, George
Abbott, George A.
Abbott, Hermon
*Abbott, James
†Abbott, Jonathan
*Abbott, Job
Abbott, Moody B.
Abbott, Nehemiah
*Abbott, Stephen
Abbott, Stephen D.
Abbott, Sylvester
*Adams, Isaac
Ballard, Joshua
*Barnard, Gilbert
*Blunt, Isaac, Jr.
Blunt, Samuel P.
Bardwell, Simeon
Bodwell, Henry A.
†Bond, William
*Burt, Seth
Carruth, Isaac
Chickering, William
†Chamberlain, Nathaniel, Jr.
*Chandler, Ralph H.
Chandler, Joseph
*Chase, John
†Chipman, Degrass
Clark, Hobart
*Cummings, Daniel
Dole, David
†Farnham, John C.
Farrar, Samuel
*Flagg, Timothy
†Flagg, Wilson
*Flint, John
Flint, John
Foster, John S.
Foster, Thomas C.
*Foster, Timothy
†French, Charles
†French, George H.
*French, Peter
Frye, Enoch
Frye, Samuel
*Frye, Timothy
Gould, A. J.
*Gray, David
Hazen, Nathan W.
*Herrick, Elijah L.
Hidden, David I. C.
*Holt, David
Holt, Dean
*Holt Henry
*Holt, Herman
*Holt, Isaac, Jr.
Holt, Jonas,
*Holt, Joseph
Holt, Joseph, Jr.
*Holt, Solomon
Holt, E. F.
*Ingalls, Ezra
*Jenkins, Benjamin, Jr.
Jenkins, John B.
Jenkins, Kendall
*Kneeland, John
*Locke, James
*Low, Joseph L.
Manning, John H.
*Marland, Abraham
*Marland, William S.
Marland, John
Merrill, Jonathan
Merrill, Samuel
Morton, Marcus, Jr.
†Needham, Samuel
*Newman, Mark
*Osgood Jacob
*Parker, John
*Pearson, Abiel
*Pearson, Eliphalet
†Pierce, William
†Pettingill, Merrill

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Phelps, Hermon
Pillsbury, Paul P.
*Punchard, Benjamin H.
Rogers, Benjamin
Rogers, Fitzwilliam
*Sanborn, Eastman
Smith, Peter,
Townsend, Nathan
*West, Edward
Whittier. Nathaniel

BEVERLY.

*Abbot, Abiel
Appleton, Isaac
Baker, John I.
†Baker, Stephens
*Bancroft, Thomas P.
*Batchelder, John
*Brown, George
*Brown, Moses
Chase, Samuel
Cole, Zachariah
Cressy, Joseph
*Cole, Alfred
Davis, Charles
*Davis, Thomas
Dodge, Aaron
*Dodge, Ezra
*Dodge, Levi
Dodge, William E.
Edwards, Israel O.
*Fisher, Joshua
*Foster, Benjamin
Friend, Seth
*Friend, William
Foster, Henry
Green, John A.
Haven, Franklin
Herrick, Joseph H.
*Hildreth, Daniel
*Kittredge, Ingalls
Killam, Charles A.
*Larcom, David
*Leach, William
Lord, Abraham
Lord, Cyrus W
Loring, Charles G.
Lovett, Francis
*Lovett, Josiah 2d
Marshall, Timothy
Mason, Lyman
Meacom, John
Paine, Charles C.
*Pindar, John
Porter, John
Porter, Nathaniel
†Porter, Robert
*Rantoul, Robert
Raymond, John W.
Rodgers, William
†Safford, Nathaniel T.
*Sheldon, Amos
Sheldon, Levi D.
Sheldon, Jesse
Standley, Samuel D. G.
*Stevens, Thomas
†Stone, Edwin M.
*Trow, James
Walker, Lawson
Waters, Richard P.
Waters, William C.
*Webber, John P.
*Woodbury. Isaac, Jr.

BOXFORD.

*Adams, Israel
Andrew, Isaac W.
*Andrew, Jonathan
Barnes, Phineas
Barnes, B. S.
†Bryant, E. D. L.
Cleveland, Wm. N.
Cole, John K.
Cole, William R.
*Cummings, Sylvester
Curtis, Francis

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Day, Albert J.
Day, John
Day, Joshua T.
†Gould, Jacob
Hale, Isaac
Hale, John
Harriman, Daniel F.
Herrick, Israel
Killam, Oliver P.
*Kimball, Amos, Jr.
Kimball, Samuel
*Low, Solomon
*Peabody, Charles,
Pearl, Simeon
*Perley, Aaron
*Perley, Abraham
*Perley, Amos
*Perley, Artemas W.
*Perley, Charles
Perley, Charles
*Perley, Jesse
*Perley, Thomas
*Perley, Nathaniel
*Symonds, Joseph
*Spofford, Stephen
*Spofford, Parker
*Spofford, Frederick
*Spofford, Mighill
Sawyer, Thomas
Tyler, William
*Weston, Fitch
Wood, Enoch
Wood. John T.

BRADFORD.

*Abbott, Warren
Carlton, George, Jr.
*Chadwick, Joseph
Cogswell, George
Cogswell, William
Cook, Justin T.
Day, Gage
Elliott, William
Greenleaf, Benjamin
*Griffin, John
*Hasselton, John
Heath, Samuel
Hopkinson, Samuel W.
Hoyt, George H.
Hoyt, Humphrey
Jenkins, Samuel
Johnson, Laburton
Johnson, Leonard
Kimball, Albert
Kimball, Alfred
*Kimball, Daniel
Kimball, Edmund
*Kimball, James
*Kimball, Jesse
Kimball, Jonathan
Kimball, Leverett
Kimball, Seth
Kimball, Wm. B.
Kimball, Wm. Eustace
Kimball, Wm. N.
Locke, Oliver
Maynard, Lambert
Nichols, Albert
Ordway, Alfred
Ordway, Enoch F.
Ordway, Geo. W.
Ordway, Warren
Pemberton, William
†Porter, Wm. F.
Sawyer, Samuel C.
*Tenney, William
*Woodman. Richard.

DANVERS.

*Adams, Israel
Adams, Joseph
Adams, Marshall C.
*Batchelder, Ezra
Berry, Allen A.
*Berry, Ebenezer
Berry, Eben G.

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Black, James D.
*Black, Moses
*Black, Moses, Jr.
Black, William
Boardman, I. P.
*Bradstreet, Dudley
Brown, Amos
Brown, Chas. W.
Butler, J. C.
*Cheever, Thomas
Cleaveland, H. W. S.
*Collins, Benjamin
*Creelman, George
*Cummins, Samuel
†Devereaux, George F.
Demsey, L. P.
Dodge, Elnathan
Dodge, Francis
Dodge, Wm., Jr.
Driver, Stephen
*Endicott, Israel
*Endicott, John
Fellows, Alfred
*Fowler, Samuel
Fowler, Samuel P.
French, George W.
*Goodale, Ebenezer
Gould, Andrew
Gould, Charles H.
Grosvenor, David A.
*Gustin, John
†Holden, Seth
Hyde, Elisha G.
*Kent, Benjamin
*Kettle, John
*Kettle, Porter
Kimball, Edward D.
Lander, William A.
Lane, Benjamin T.
Langley, J. R.
Legro, Edmund
Learoyd, A. P.
Martin, Geo. B.
Merrill, Levi
Mudge, Edwin
Newhall, Benjamin S.
*Nichols, Abel
Nichols, Andrew
Noyes, Francis
*Oakes, Caleb
Osgood, George
*Page, John
Page, Nathan, Jr.
Perley, A. P.
Perley, Frederick
Perry, James M.
Pope, Amos P.
Pope, Elijah
Pope, Ira P.
*Porter, Benjamin
Porter, Benjamin F.
*Porter, John
*Porter, Joseph
Preston, Charles P.
Preston, John
Preston, Samuel
*Putnam, Ahira
*Putnam, Daniel
Putnam, Eben
*Putnam, Eleazer,
*Putnam, Elias
Putnam, Edwin F.
Putnam, Francis P.
Putnam, Israel H.
Putnam, J. A.
Putnam, James A.
*Putnam, Jeremiah
*Putnam, Jesse
Putnam, Joel
*Putnam, John
*Putnam, Mary
*Putnam, Moses
*Putnam, Nathaniel
*Putnam, Samuel
Putnam, Rufus
*Putnam, Thomas
Putnam, William R.
*Reed, Briggs R.

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Richardson, Stephen
Richardson, Wyman B.
Richards, Daniel
Silvester, Joshua
*Sleeper, James,
*Sprague, Joseph
Spaulding, Samuel W.
*Swan, Chas. B.
Swan, Sylvanus B.
Swinerton, John
*Symonds, Thomas
*Tapley, Asa
*Tapley, Asa, Jr.
Tapley, Gilbert
Tapley, Gilbert A.
Tapley, Nathan
*Tapley, Perley
*Trask, William
*Tyler, John
Waite, Peter
Wallis, Samuel
Walcott, William H.
Warren, Aaron W.
Warren, Jonas
*Webster, Caleb
Weston, Wm. L.
*Whipple. Stephen

ESSEX.

Andrews, Elihu
Andrews, Joseph
Andrews, Miles S.
*Andrews, William
*Burnham, Jacob, Jr.
Boyd, Adam
Choate, David
*Choate, George
Choate, John
Choate, John P.
Choate, Joseph
*Choate, Thomas
*Cogswell, Aaron
Cogswell, Chas. B.
Dodge, Grover
Knowlton, Aaron
Lee, William
Low, Aaron K.
*Low, Daniel
*Low, John
Low, Josiah
Low, Winthrop
Mears, Wm. H.
Marshall, Joseph
Story, Ephraim
*Story. Jacob

GEORGETOWN.

*Adams, Abraham
*Adams, Benjamin
*Adams, Samuel
Bateman, A. P.
Boynton, George W.
Boynton, Charles
Bradstreet, Asa
Brocklebank, John
Brocklebank, Samuel
*Chaplin, Eliphalet
*Couch, H. M.
Dole, Richmond
*Horner, Andrew
Jewett, Robert
*Little, Benjamin
Little, Samuel
*McKenney, John
*Mighill, David
Moulton, Daniel E.
*Nelson, Asa
Nelson, Charles
Nelson, Solomon
Nelson, Sherman
*Perley, John
Pettingell, Henry
*Platt, Colman
*Savary, Benjamin
Spofford, Harrison B.
*Spofford, Mighill

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*Spofford, Moody
*Spofford, Peabody
*Spofford, William, Jr.
Tenney, George J.
Tenney, Richard
Tenney. Moses

GLOUCESTER.

*Brown, Jonathan
*Davis, Timothy
*Gilbert, Samuel
*Haskell, Abraham
*Haskell, Daniel
*Haskell, Isaac
*Haskell, Stephen
*Hough, Benjamin K.
*Kittredge, John
*Lufkin, Thomas
*Mansfield, James
*Mason, John
Nash, Lonson,
Parsons, William 2d
Patch, Isaac
*Pearce, William
*Pearce, William, Jr.
Pearce, Edward H.
*Prindall, Eliakim
Proctor, William, Jr.
*Roberts, Charles L.
*Saville, William
*Sawyer, Charles
*Stacey, Benjamin
*Stacey, Samuel
*Stanwood, Zebulon
*Stevens, Zachariah
*Tappan, James
*Vancey, Josiah
*Webber, Benjamin
Wonson. George M.

GROVELAND.

Atwood, Moses P.
*Balch, William
†Balch, William H.
*Greenough, William
*Hardy, Phineas
Harriman, Charles
*Hopkinson, Silas
Ladd, John I.
Ordway, Joshua H.
*Parker, Benjamin
*Parker, Moses
*Parker, Peter
*Parker, William
*Perry, Gardner B.
*Savary, Thomas
Spofford, Jeremiah
Stickney. Daniel

HAMILTON.

Allen, Francis R.
*Appleton, Oliver
*Brown, Azor
Brown, Jacob
Brown, William A.
†Burnham, Choate
*Cutler, Temple
Dane, George
Dane, Samuel
*Dodge, Allen
Dodge, Allen W.
*Dodge, Antipas
*Dodge, David
Dodge, Emerson P.
Dodge, Geo. B.
*Dodge, Henry
*Dodge, Isaac
*Dodge, John B.
*Dodge, Robert
Knowlton, Isaac
Knowlton, Isaac F.
Lamson, Jarvis
Manning, James
†Norris, George
*Patch, Joseph

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Patch, Paul D.
Porter, Oliver
Safford, Daniel E.
*Smith, Ammi
*Smith, Asa
Smith, John
*Tuttle, John
*Whittredge, John
Whittredge, John
*Woodbury. Andrew

HAVERHILL.

*Ames, James E.
*Ayer, James
*Batchelder, William
*Bartlett, Bailey
Bartlett, James A.
*Bartlett, Thomas
Bodwell, Stephen
*Bradley, Daniel
*Bradley, Enoch
*Bradley, Enoch L.
Brickett, Daniel
Brickett, Daniel H.
Brickett, Franklin
Butters, H. A.
Caldwell, William
*Carlton, Aaron, Jr.
Carlton, John
Carlton, Samuel
Carlton, Wm. B.
Chase, C. W.
*Chase, John
*Chase, Tappan
Chase, William D. S.
*Chase, Woodman
Coburn, A. M.
Coffin, George
*Coffin, Joseph
Corliss, Charles
*Corliss, Ephraim
Cushman, R. P.
Davis, George W.
*Day, James
Dunbar, Charles H.
Duncan, James H.
*Duncan, Jas. H., Jr.
Eaton, Harrison
*Elliott, Ephraim
Elliott, Samuel H.
Elliott, Samuel
Emerson, Albert
*Emerson, Nehemiah
Emery, Benjamin E.
Emery, Moses G. J.
Farnsworth, J. H.
Fellows, Samuel
Fitts, D. F.
Fletcher, Edmund
Gale, James
Gale, James E.
George, M. D.
Goodrich, T. J.
Hale, E. J. M.
Hale, Samuel
*Harding, Jesse
Harding, Thomas
Harmon, David P.
†Hazeltine, Hazen
Holt, Charles
*How, David
*Howe, Isaac R.
Howe, Nathaniel S.
Ingalls, E. T.
Jeffers, William
*Johnson, Daniel
Keely, John
Kittredge, Alfred
†Lee, George W.
†Little, Edmund B.
*Marsh, David
Marsh, John J.
Merrill, William
Morse, John
Nichols, James R.

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†Nichols, John A.
Noyes, James
Noyes, Johnson
*Pecker, Samuel
*Pecker, William
Porter, Ebenezer
*Porter, Eleazer A.
†Plummer, Hiram
Putnam, Moses W.
Randall, John P.
Richards, Wm. B.
Roberts, Stephen
Savary, Robert
*Sawins, E. J.
Slocum, Rufus
Smith, Jesse
*Spofford, Leander
Stewart, John
*Stewart, Richard
Tompkins, Christ'r
Turner, James
*Varnum, John
Wadleigh, Levi C.
Webster, David
Webster, Ebenezer
Webster, Nathan
†Welch, Ezra B.
West, Thomas
Wheeler, Allison
White, James D.
Whittier, Leonard
*Whittier, Warner
Whittier, Warner R.
*Whitton, G. W. G.
Wingate, Moses
*Woodman. John

IPSWICH.

*Andrews, Asa
Andrews, David
Andrews, Theodore
*Baker, Charles
Bray, Frederick
Brown, Aaron F.
*Brown, Ephraim
*Brown, Jacob
Brown, Manasseh
*Brown, Michael
*Brown, Tristram
Brown, William G.
Caldwell, Abraham
*Choate, John
Cogswell, Daniel
Cross, John D.
*Day, Abner
Dunnells, John H.
†Farley, Alfred M.
Farley, Joseph
†Farley, Robert, Jr.
*Farley, Jabez
*Farley, Joseph
*Farley, Michael
Foster, John
*Foster, Thomas
*Giddings, Joshua
*Gould, Amos
Green, Samuel H.
*Hammatt, Abraham
*Heard, John
Hobbs, John
*Hodgkins, Joseph
Kimball, Charles
Kimball, Daniel
†Locke, Calvin
*Lord, Ebenezer, Jr.
*Lord, Moses
*Lord, Nathaniel, Jr.
Low, Thomas
†Merrill, Ezekiel O.
Mitchell, Frederick
*Oakes, William
*Patch, John
*Pearson, Stephen
*Perley, Jacob
*Ross, Daniel
Ross, Joseph
*Wade, Nathaniel

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*Wade, Thomas
Wade, William F.
Waite, Abraham D.
*Waite, Luther
†Wallis, Aaron
Worcester. Ira

LAWRENCE.

Ambrose, Nathaniel
Andrews, C. M.
*Benson, George W.
*Bigelow, Charles H.
Bodwell, Asa M.
Bryant, Oliver
Cary, James
†Clark, Bracket H.
†Clark, Joseph F.
†Cook, Homer A.
*Cross, Robert
Currier, Eben B.
Decker, J. M.
Durant, Adolphus
Hayes, J. F. C.
Harmon, Nathan W.
Herrick, James D.
Hills, George W.
*How, Harrison G.
†Kimball, William M.
†Kimball, Josiah
Lamb, William D.
Rollins, John R.
Stevens, William
Warren. Albert

LYNN.

Alley, John 3d
Baker, Daniel C.
†Baker, Ezra
Breed, Andrews
Breed, Daniel
†Breed, Henry A.
Breed, Nehemiah, Jr.
*Breed, Thomas A.
*Breed, William B.
*Brimblecom, Samuel
*Brown, Ebenezer
Brown, Ira P.
Brown, Isaac
Burrill, Micajah
Chase, Hezekiah
Chase, Nathan D.
*Chase, Jacob
*Childs, Amariah
†Coggeshall, J. H.
†Collins, Ezra
Davis, Edward S.
Emery, Geo. E.
Fay, Richard S.
*Fuller, James
*Gardner, James
Graves, Samuel
Healy, Mark
*Hood, George
Hovey, Rufus P.
*Ingalls, Jacob, Jr.
*Ingalls, John 3d
*Johnson, John L.
Keene, Geo. W.
*King, Otis
Merritt, Charles
*Mudge, John
Newhall, Charles
Newhall, Henry B.
Newhall, John
*Newhall, Josiah
*Newhall, Samuel
Norris, Geo., Jr.
Nye, James, M.
Oliver, Bemjamin
Oliver, John E.
Osborn, William
†Osborn, William H.
*Pratt, James
*Philips, Jonathan, Jr.
Rice, Jesse
*Silsbee, Henry

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Spinney, William N.
*Stanley, Thomas
Sanderson, Joseph N.
*Story, Isaac
*Sweetser, Ephraim
*Tebbetts, Ezra R.
*Trevett, Robert W.
*Wardwell, Henry
†Wyman, Isaac

LYNNFIELD.

*Aborn, Samuel
Bancroft, Thomas
*Bryant, John
Danforth, John
Emerson, Hubbard
Emerson, Oliver
Emerson, D. E.
Hawkes, George L.
*Hewes, Elijah
*Mansfield, Andrew
Mansfield, Andrew
*Needham, Daniel
*Newhall, Asa T.
Newhall, Josiah
Newhall, Hiram L.
*Perkins, John
Perkins, John
†Richardson, Charles
Smith, Joseph
*Smith, William
Upton, Edward
*Viles, Bowman

MANCHESTER.

*Allen, John
*Allen, John W.
Allen, Luther
*Burgess, Abiel
Burnham, Frederick
Chase, Joseph S.
*Colby, David
*Crafts, David
*Foster, Benjamin
Foster, Israel
*Foster, Samuel
Friend, Daniel W.
Gentlee, Thomas P.
Hildreth, John D.
*Hooper, John
Knight, John, Jr.
*Lee, John
Lee, John
*Parsons, Tyler
Price, John
Smith, A. W.
*Smith, Bailey
*Stone, Abraham
*Story, Henry
Tappan, Benjamin
*Tappan, Ebenezer
Tappan, Ebenezer
Tappan, Israel F.
*Williams, Samuel N.

MARBLEHEAD.

Alley, Franklin
*Alley, James
Brown, Ephraim
Brown, Increase H.
Cloutman, Henry
Child, Caleb
*Fielding, John
Gregory, J. J. H.
†Hathaway, Jeremiah
*Hathaway, John G.
Hathaway, Joseph B.
Hathaway, Seth W.
*Hooper, John
*Hooper, Nathaniel
Hayes, George
Johnson, John
*Mason, Joseph
†Millett, Joseph
Nutting, John

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*Prince, John
*Reed, Benjamin T.
*Reed, William
Robinson, Frederick
Stone, John, Jr.
*Trail, John
Ware, Benjamin P.
Ware, Erastus
Ware, Horace
Wilson, George
Warren, David
Winslow, Geo. W.
†Wyman, Israel
†Wyman, Luke
*Wyman, Seth

METHUEN.

*Atkinson, Moses L.
Barker, J. B.
Barker, Stephen
Bodwell, Hazen
Bodwell, Joseph R.
Bradley, Leverett
Butters, George W.
*Carlton, Joseph W.
Davis, John
Dow, Lorenzo
*Frye, Jeremiah
*Frye, William H.
Gage, George W.
Grosvenor, John M.
How, Christopher
How, Joseph
How, Joseph S.
Ingalls, Charles
Ingalls, Joseph F.
Jackman, E. G.
Jones, Jewett
Kimball, Frederick
Knight, Henry
Low, John
Merrill, Daniel 2d
*Merrill, Jonathan
Nevins, David
*Osgood, Benjamin
Russ, John
*Tenney, John
†Welch, John
*Wilson, Simeon L.

MIDDLETON.

*Averill, Benjamin
Berry, Jonathan
Berry, William
Flint, James
*Flint, Jesse
*Fuller, Daniel
Fuller, Dean
Fuller, Ephraim
Hutchinson, J. A.
Merriam, Andrew
*Peabody, David
*Peabody, David, Jr.
*Peabody, Joseph 2d
*Peabody, Nathaniel
Phelps, Wm. A.
Potter, Edward P.
Stiles, David, Jr.
*Wilkins, Elias,
Wilkins, Samuel
*Wilkins, Solomon
Wellman, John K.

NEWBURY.

Adams, Daniel
*Adams, George W.
*Adams, Gibbins
Adams, John J.
*Adams, Richard
Adams, Charles W.
Adams, John C.
Bray, Richard S.
*Burleigh, Edward M.
Caldwell, David S.
*Carter, Thomas

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Coffin, Joshua
*Davis, Charles M.
*Dodge, Robert
*Dole, David
*Dole, Moses
Gowen, Ezekiel
*Hale, Daniel
*Hale, Thomas
*Jaques, Richard
Jaques, Richard T.
Kent, John N.
*Kent, Paul
Langley, William
*LeBreton, Peter
*Lees, John
*Little, Amos
*Little, David
Little, Edward H.
*Little, Henry
Little, Joseph
Little, Nathaniel
*Little, Silas
Little, Stephen W.
Little, William
Longfellow, J.
Longfellow, Samuel
Lunt, Joseph
*Moody, Silas
*Moody, William
*Nelson, Jeremiah
Newman, John
*Newman, Samuel
Northend, John
Noyes, Daniel
Noyes, Luther
*Pike, Richard
Perkins, Joseph
Plummer, Greenleaf
Plummer, Daniel, Jr.
Rolfe, Joseph N.
Sargent, G. P.
*Sargent, William
Tenney, Daniel S.
*Titcomb, Enoch
*Titcomb, Josiah
Titcomb, Paul
*Toppan, Enoch
*Torrey, John
*Whitmore, Amos
Wildes, Green
Young, Hiram

NEWBURYPORT.

*Adams, Isaac
Adams, J. Quincy
Akerman, John
Akerman, Joseph
*Allen, Ephraim W.
Ashby, William
*Bailey, Ebenezer
Ballou, C. N.
*Bannister, William B.
*Bartlett, Edmund
*Bartlett, Jonathan
*Bartlett, Richard
*Bartlett, William
*Bartlett, William, Jr.
Brewster, William H.
Bricher, William
Brown, David F.
*Brown, Moses
*Caldwell, Alexander
*Carter, George
*Carter, Joshua
Choate, Geo. A.
*Clark, Thomas N.
*Coffin, Hector
Colby, George W.
Cole, Augustus K.
Colman, James C.
Colman, Daniel T.
Colman, Jeremiah
Colman, Moses
*Coombs, Philip
*Cross, William
Cushing, Caleb
Davis, Benjamin

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Delano, Otis
†Dodge, John S.
Dyer, J. R.
Emery, David
*Emery, Moses
†Fernald, Henry B.
Frothingham, Henry
*Gage, Jonathan
Gale, Stephen M.
Graves, William
*Greenleaf, John
*Greenleaf, Joshua
*Hale, Benjamin
Hale, Joshua
Hale, Josiah L.
Hamblet, Horace
Hart, James S.
*Howard, Stephen
Huse, William H.
Hudson, Charles H.
Jackman, George W.
*Jenkins, George
*Johnson, Eleazer
*Johnson, Nicholas
Johnson, William P.
Kelley, E. G.
*Kinsman, Henry W.
*Little, Josiah
Little, Moses S.
Lucy, Gideon R.
Lunt, Micajah
Lyford, George H.
Marston, Stephen W.
Merrill, Enoch
*Merrill, John
Merrill, Samuel, Jr.
Morse, Daniel L.
Morse, James M.
Morss, Joseph B.
*Mosely, Ebenezer
Mosely, Edward S.
Moulton, Joseph
Newhall, Joshua L.
Page, John T.
*Pardy, Aaron
Payson, Samuel T.
Peabody, Charles
Pearson, J. P.
*Pearson, John
*Pettingell, John
Pettingell, Moses
Phillips, Samuel
*Pike, Joseph S.
Pray, Rufus
*Prince, James
*Prince, William H.
*Rand, Edward
Rand, Edward S.
*Roberts, Joseph
†Robinson, J. D.
Shoof, Henry
Smith, David M.
Smith, Edmund
Smith, J. M.
Smith, Robert A.
Stearns, Edwin
*Stedman, Ebenezer
*Stickney, David
*Stone, Isaac
Stone, Jacob
Sumner, John
Tenney, Richard
Tilton, Enoch
*Thompson, Sam'l W.
Tappan, Samuel B.
Toppan, Amos
Toppan, Edward
Toppan, Joshua
*Toppan, Thomas P.
Wheeler, Moses B.
*Whipple, Charles
*Wildes, Asa W.
Williams, Enoch S.
†Williams, Robert
Wills, Charles
Winkley, Paul T.
*Wood, Abner
Wood, David

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*Wood. John

NORTH ANDOVER.

*Abbott, Abiel
*Abbott, Gardner
*Adams, John
*Adams, Joseph H.
*Ayer, Samuel
Bailey, Charles P.
Bailey, Otis
Barker, Jedediah H.
*Barker, Samuel F.
*Barker, Stephen
†Batchelder, William
Berry, Jacob
*Berry, Nathaniel
*Bridges, Moody
Butterfield, Chas. A.
Carlton, Daniel
Crosby, Josiah
Davis, George L.
*Farnham, Benjamin
Farnham, Jacob
*Farnham, Jedediah
*Farrington, Philip
Foster, Charles
*Foster, John
Foster, John P.
†Foster, J. Prescott
Foster, William 3d
French, George
Fuller, Abijah P.
Gage, John C.
*Goodhue, John
Goodhue, Hiram P.
Green, Arthur M.
Hodges, George
Hopkins, John F.
Hubbard, Leverett
*Ingalls, Francis
*Ingalls, Jonathan
†Jaquith, Christ'r P.
†Jenkins, Samuel
Johnson, Theron
*Johnson, William, Jr.
*Kittredge, Thomas
*Kittredge, Joseph
Kittredge, Joseph
Loring, I. Osgood
Montgomery, Jas. A.
Oliver, Samuel C.
*Osgood, Gayton P.
Osgood, Henry
*Osgood, Isaac
*Osgood, Isaac Jr.
*Parker, Moses
Peters, Nathaniel
Peters, William
*Phillips, John
†Poor, Henry
Poor, James
*Poor, John, Jr.
*Poor, Nathaniel
*Poor, Timothy
*Prescott, James M.
†Raymond, Samuel
†Slade, Jarvis
†Spaulding, Amos
Spofford, Farnham
*Stevens, James
Stevens, Nathaniel
Symonds, Frederick
†Wardwell, Orin
Weed, Dan
Wilson. Abiel

ROCKPORT.

*Gott, John
Manning, James
*Manning, John
*Norwood, Caleb
*Pool, Caleb
*Pool, Ebenezer
Pool, Ebenezer
Row, Ebenezer
Tarr. Epps

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ROWLEY.

Foss, Joshua
Hale, Daniel J.
Hale, Thomas
Morrison, Daniel
*Payson, Thomas
Proctor, George
Todd. Daniel G.

SALEM.

*Andrew, Charles A.
*Andrews, Joseph
Andrews, Joseph
Andrews, Samuel P.
*Ashton, Jacob
†Barstow, Gideon
Barton, Gardner
Barton, William C.
*Bowditch, Nathaniel
Bowdoin, Willard L.
Brookhouse, Rob't, Jr.
*Burnham, Ebenezer
*Carlyle, Thomas
Chamberlain, James
Chase, Stephen A.
Chase, William
Collins, William
*Colman, Henry
*Crowninshield, Benj. W.
*Cummins, David
†Dodge, Pickering
*Dustin, Jonathan
*Eames, Theodore
Endicott, William P.
Endicott, William C.
Felt, John
Fiske, Joseph E.
Foote, Caleb
*Forrester, John
*Forrester, Thomas H.
Foster, Joseph C.
Foster, William H.
Foster, William J.
Goodhue, William P.
Hill, Moses
*Howes, Frederick
Huntington, Asahel
Ives, John M.
Ives, John S.
Ives William
Jones, Samuel C.
†Kimball, Eliphalet
Kimball, James
*King James C.
*King, John G.
†Kinsman, John
Lee, John C.
Lord, Nathaniel J.
Loring, George B.
*Mack, Elisha
Mack, William
*Manning, Robert
*Merrill, Benjamin
Merrill, S. A.
Merritt, D.
Messervy, William S.
Metcalf, Benjamin G.
†Newhall, Isaac
Newcomb, Caleb
*Nichols, Benjamin R.
Nichols, George, Jr.
*Nichols, Ichabod
Northend, Wm. D.
*Northey, Abijah
Noyes, E. K.
Oliver, H. K.
Peabody, Francis
*Peabody, Joseph
Peirce, Caleb
Peirson, Edward B.
Perkins, J. C.
*Phillips, Stephen
*Phillips, Stephen C.
Phillips, Willard P.

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Phippen, Geo. D
*Pickering, Henry
*Pickering, John
Pickering, John
*Pickering, Timothy
*Pickman, Benjamin
*Pickman, William
Potter, Daniel
†Proctor, William
Pulsifer, David, Jr.
Pulsifer, Joseph
Putnam, Charles F.
*Richardson, Wm. P.
Roberts, William
†Robinson, J. A.
*Robinson, Nathan
Rogers, A. D.
Rogers, Richard S.
*Russell, John
Russell, John L.
*Saltonstall, Leverett
*Saunders, Jonathan P.
Saunders, William
*Seccomb, Ebenezer
*Silsbee, Nathaniel
*Sibley, John S.
Smith, Caleb
*Sprague, Joseph
*Sprague, Joseph E.
*Sprague, Joseph G.
†Standley, Samuel S.
Story, Augustus
*Story, Joseph
Streeter, Gilbert
*Thorndike, Larkin
*Tucker, Gideon
*Tucker, Ichabod
*Tucker, Samuel
*Upton, Paul
*Ward, Joshua H.
Ware, Horace
*Webb, Michael
†Webb, Michael, Jr.
*West, Nathaniel
Wheatland, Henry
*White, Daniel A.
*White, Stephen
Whipple, Henry
*Winchester, Jacob B.
Winkley, Enoch
Wyman. Rufus

SALISBURY.

†Ayer, James H. B.
*Ball, Ebenezer W.
*Barnard, Edmund
*Brown, Henry M.
*Brown, Jacob
Clark, Thomas J.
Currier, David
Currier, Jacob
*Currier, Moses
*Dole, Belcher
Evans, Benjamin
*French, Moses
Gale, Josiah B.
*Follansbee, Joshua
*March, Samuel
*Merrill, Ezra
*Morrill, Bradbury
*Morrison, Abraham
*Nayson, David
*Nye, Samuel
Osgood, Timothy
*Payson, David
*Rowell. Philip

SAUGUS.

*Cheever, Abijah
*Brown, Timothy H.
*Eustes, Jacob
*Mansfield. Thomas

SOUTH DANVERS.

Abbott, Alfred A.

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Allen, Lewis
Ayer, Hazen
Bancroft, Sidney C.
Barrett, E. P.
Basford, P. R.
Blaney, Stephen
*Brown, Dennison W.
*Brown, James
Brown, Joseph
*Brown, William
*Buxton, Daniel
Buxton, Daniel, Jr.,
Buxton, Joshua,
*Cary, Joseph W.
*Choate, Rufus
Clement, John B.
Cook, Henry
Colcord, J. L.
*Crowninshield, Rich'd
†Dane, Francis
Davis, Mark
Daniels, Robert S.
*Dodge, Daniel
*Dole, Moses
*Elliott, Isaac
Fairfield, Joseph
*Felton, Nathan
*Felton, Nathaniel
Felton, Nathaniel
Felton, William H.
*Flint, Elijah
*Flint, Hezekiah
*Foster, Gideon
*Frost, Caleb L.
*Gardner, George
Goodale, Byron
Goodale, J. P.
Gould, Henry L.
†Gunnison, Elisha
Hardy, Isaac
†Hathaway, John
Hide, B. M.
†Hoyt, Joseph
Hubbard, John L.
Huntington, Benj.
*Jacobs, Benjamin
Jacobs, Warren M.
King, Amos
King, Eben
*King, Ebenezer
*King, Daniel P.
King, D. Webster
King, Henry A.
King, James P.
King, Jonathan
King, Perley
*Lander, Charles B.
*Little, Joshua B.
Little, William H.
*Little, William W.
†Low, Caleb
Marsh, James
*Marsh, John
Marsh, Philip
*Merrill, Samuel
Merrill, Wingate
*Moreland, Thomas
*Munroe, Andrew
Nesmith Adam
*Ney, Ebenezer
*Nichols Andrew
Osborn, Abraham C.
Osborn, David
*Osborn, Joshua
Osborn, Kendall
Osgood, Joseph
†Page, Adino
Potter, William
Poor, Henry
Pearson, Nathan
Peirson, A. L.
*Phelps, Francis
Phillips, Alonzo
*Poole, Fitch
Poole, Fitch
*Poole, Ward

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Poole, Ward
Poor, Eben S.
*Poor, Enoch, Jr.
*Poor, Nathan
Preston, Levi
*Preston, Moses
Preston, Moses
*Proctor, Aaron C.
Proctor, Abel
*Proctor, Israel P.
Proctor, John W.
*Proctor, Johnson
*Proctor, Sylvester
Proctor, Thorndike
Sanger, Abner
*Saunders, Oliver
Sawyer, Asa
Scott, Benjamin
*Shaw, Joseph
*Shed, Joseph
*Shove, Jonathan
*Shove, Squires
*Southwick, Edward
*Southwick, Edw'd, Jr.
Southwick, Sumner
*Spaulding, Joseph
Stanley, Miles O.
*Sutton, William
Sutton, William
Symonds, Nath'l P.
*Symonds, Samuel
*Taylor, David
*Tufts, Joseph
Upton, Eben S.
*Upton, Elisha C.
*Upton, John
*Upton, Jonathan
Upton, Stephen
Walcot, John G.
*Wallis, Dennison
Wheeler, Benjamin
White. A. A.

SWAMPSCOTT.

Mudge, E. R.
*Phillips, John
Phillips, J. B.
†Pitnam, Samuel C.
†Stetson, Charles A.
Washburn. John

TOPSFIELD.

Andrews, B. P.
Andrews, Moody
*Averill, Joseph
*Batchelder, Joseph
Balch, Abraham
*Balch, Daniel P.
*Balch, Thomas
*Balch, William H.
†Boyden, Dwight
*Boyden, Frederick
*Bradstreet, Moses
Cleaveland, John
Cleaveland, Nehemiah
*Cummings, David
*Cummings, Cyrus
Elliott, Israel D.
*Emerson, Billy
*Emerson, Joseph
†Emerson, Thomas P.
*Gould, Allen
*Gould, John
*Gould, Jonathan P.
*Gould, Josiah
Herrick, Charles
Hobbs, Abraham
*Hood, Edward
*Hood, Elisha
*Hood, John
*Hood, Samuel
Hood, S. D.
Hubbard, William
*Lake, Joel

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*Lamson, John
*Merriam, Frederick J.
Merriam, Royal A.
*Munday, T. P.
Munday, William
*Peabody, Ebenezer
*Peabody, Joel R.
*Peabody, John
*Perkins, David
*Perkins, Ephraim
*Perkins, Ezra
*Perkins, Thomas
*Perley, Nathaniel
Pierce, T. W.
Poole, Benjamin
*Rea, Isaac
†Rea, John, Jr.
*Towne, Jacob, Jr.
*Towne, Joshua
*Wildes, Dudley, Jr.
*Wildes, Ephraim
*Wildes, John
*Wildes, Moses
Wildes, Moses
†Wildes. Solomon

WENHAM.

Batchelder, Joseph
*Brown, Nehemiah
Cressy, Josiah P.
*Dodge, Abraham
Dodge, Andrew
Dodge, Ezra
Dodge, George F.
*Dodge, Isaac
*Dodge, John T.
*Dodge, Nicholas
Dodge, Richard
*Dodge, William
*Dodge, William 2d
*Edwards, Benjamin
Gould, Amos
Gould, John J.
Hadley, Franklin
Hobbs, Henry
*Kimball, Edmund
*Peabody, Warren
Porter, John
*Porter, Jonathan
*Porter, Paul
Porter, William
†Putnam, Benjamin C.

WEST NEWBURY.

Bailey, Daniel
*Bailey, Samuel
Bailey, Samuel N.
Bailey, Uriah
Brown, Hayden
Brown, Robert L.
Carr, George W.
Carr, Moses
Carr, James
Carr, Samuel
Chase, Samuel S.
*Chase, Thomas
*Emery, Daniel
Emery, Eliphalet
Emery, George
Emery, Moses
Follansbee, Amos M.
Follansbee, John
†Griffin, B. F. S.
Goodridge, David L.
Goodridge, Joseph
Gordon, Joseph Z.
*Grieve, William T.
*Heath, Richard
*Hills, Edmund
*Hills, Edward
*Hills, Thomas
Hosam, George
Little, Edmund, Jr.
Little, Moses
Little, Otis
Merrill, William

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Moody, Samuel
Moore, Alfred L.
Moulton, Daniel
Mosely, Charles C.
Nelson, Mary P.
*Newell, Joseph
Newell, Joseph
*Newell, Moses
Nichols, Daniel P.
Noyes, Anson W.
Noyes, William, Jr.
Noyes, Stephen E.
*Noyes, Moses
Ordway, Cyrus K.
Ordway, Hanson
Ordway, Moody
Ordway, Perley
Ordway, Thomas G.
*Osgood, John
*Pearson, Nathaniel
*Pillsbury, Daniel
Pillsbury, Daniel
*Pillsbury, Oliver
Poor, Amos,
*Poore, Benjamin
Poore, Benj. Perley
*Poor, Daniel N.
Poor, Moses H.
Ridgeway, Joseph N.
Ridgeway, Moses M.
Robinson, Dean
Rogers, Calvin
Rogers, Charles
Rogers, Hiram
Rogers, Samuel
Sawyer, David
Smith, Amos
Smith, David
Smith, James
Smith, Moses
*Stanwood, Joseph
*Tenney, Samuel
Thurlow, George
Thurlow, Stephen C.
Thurlow, Thomas C.
Thurlow, William

BOSTON.

Flint, Charles L.
Parker, James M.
Payson, Thomas E.

NOTE.—Members deceased are marked with an * ; those removed out of the county with a †.

ERRATA.—On page 104, the sentence: "Upon the acre and one-eighth in mangel wurzels, the crop measured sixteen hundred bushels, or sixteen hundred bushels to the acre," should read: "Upon the one and one-eighth acres in mangel wurzels, the crop measured sixteen hundred bushels, or *fourteen* hundred bushels to the acre."

On page 178, in List of Officers, it should be Joseph Ross, instead of John L. Ross.

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CONSTITUTION

—— OF THE ——

ESSEX AGRICULTURAL SOCIETY.

ARTICLE I. There shall be a President, four Vice Presidents, a Secretary and a Treasurer, who shall be Trustees, *ex officio:* in addition to these, thirty (originally twelve) other Trustees shall be chosen from the members at large, all of whom shall continue in office until others are elected in their stead.

ART. II. There shall be an Annual Meeting of the Society, at such time as the Trustees shall determine; at which all officers shall be elected. Twenty members at least shall be necessary to constitute a quorum for the transaction of business.

ART. III. If at any meeting of the Society, or the Trustees, the President and Vice Presidents shall be absent, the members present may appoint one from among them to preside at such meeting.

ART. IV. The President, or, in case of his absence, either of the Vice Presidents, with the advice of the Trustees, may call a special meeting of the Society; or whenever a written application, with the reasons assigned therefor, shall be made by any twelve members of the Society, to the President and Trustees, they shall call such meeting.

ART. V. The meetings of the Trustees shall be held at such time and place as they shall from time to time agree upon; seven of whom with the presiding officer shall make a quorum.

ART. VI The Trustees shall regulate all the concerns of the

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Society, during the intervals of its meetings; propose such objects of improvements to the attention of the public, publish such communications, and offer premiums in such form and value as they shall think proper, (provided the premiums offered do not exceed the funds of the Society;) and shall lay before the Society at each of its meetings, a statement of their proceedings and of the communications made to them.

ART. VII. The Secretary shall take minutes of all the votes and proceedings of the Society and of the Trustees, and enter them in separate books; and shall record all such communications as the Trustees shall direct. He shall write and answer all letters relating to the business of the Society.

ART. VIII. The Treasurer shall receive all moneys due or payable to the Society, and all donations that may be made to it; for which he shall give duplicate receipts, one of which shall be lodged with the Secretary, who shall make a fair record thereof. The Treasurer shall from time to time pay out such moneys as he shall have orders for from the Trustees; and shall annually, and whenever thereto required, render a fair account of all his receipts and payments to the Society or a committee thereof. He shall give bonds for the faithful discharge of his duty, in such sum as the Trustees shall direct, and with such sureties.

ART. IX. A committee shall be appointed annually by the Trustees to audit the Treasurer's accounts, who shall report to the Society; and the same being accepted shall be entered by the Secretary in his books.

ART. X.—In case of the death, resignation, incapacity, or removal out of the county of the Secretary or of the Treasurer, the Trustees shall take charge of the official books, papers, and other effects, belonging to the office that may be vacated, and give receipts for the same; which books, papers, etc., they may deliver to some person whom they may appoint to fill the office until the next meeting of the Society, at which time there shall be a new choice.

ART. XI.—Any citizen of the county may become a member of the Society, by paying the sum of THREE DOLLARS to increase the permanent fund of the institution.

ART. XII.—A committee shall be raised from time to time to solicit and receive subscriptions for raising a fund for en-

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couraging the noblest of pursuits, the Agriculture of our country. The same to be sacredly appropriated to that purpose..

ART. XIII.—All ordained ministers of the Gospel who reside within the county, shall be admitted honorary members of the Society.

ART. XIV.—In addition to the usual number of Trustees annually elected, the past Presidents of the Society shall be honorary members of the Board of Trustees.

AMENDMENTS TO THE CONSTITUTION.

ADOPTED SEPT. 28th, 1859.

ARTICLE I. At the meeting of the Trustees in November, 1859, they shall be divided into three equal classes, by lot to be drawn by the President of ten each, and the term of office of the first class shall expire on the day of the annual meeting of the Society in the year 1860; of the second class on the same day in the year 1861; and of the third class on the same day in the year 1862.

ART. II. At each annual meeting of the Society hereafter ten Trustees shall be chosen by ballot, to hold office for the term of three years from the date of their election. The President shall be chosen at each annual meeting of the Society by ballot. Elections to fill vacancies may be at the Annual Meeting, or at any meeting of the Society specially called for the purpose, and such elections shall be only for the term that may happen to remain unexpired.

ART. III. The Secretary, Treasurer and Vice Presidents shall be elected by the Trustees annually, at their meeting in the month of November.

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LIBRARY.

The LIBRARY is established at the Plummer Hall, Essex Street, Salem, where Members can obtain Books under the following

REGULATIONS:

1. Each member shall be entitled to take from the Library TWO VOLUMES, on signing a receipt for the same, and agreeing to be accountable therefor.

2. No member shall keep any book more than two weeks, after being notified (by the Librarian) that the same is wanted by another member.

3. All books belonging to the Library shall be returned on or before the 15th of November, in each year; that the same may be examined and the condition of the Library reported to the Trustees.

4. Any member who shall neglect or refuse to conform to these Regulations, shall thereby forfeit the privilege of taking books from the Library.

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Of every description, and most approved patterns for the

FARM AND GARDEN,

And are offered by us in quantities to suit, at the lowest prices. Our Stock includes Eagle and Lion Plows, Harrows, Cultivators, Horse Hoes, Corn Shellers, Hay, Straw and Corn Stalk Cutters, Self Sharpening Cutters — with one straight Knife, the best in use — Horse Powers and Threshing Machines, Seed Sowers, Churns, Vegetable Cutters, Field and Garden Rollers, Wheelbarrows, Pumps, Boilers, Sugar Mills, Root Pullers, Axes, Hatchets, Handles, Picks, Shovels, Hoes, Spades, Hay and Manure Forks, Scythes, Snaths, Horse and Hand Rakes, Scythe Stones and Rifles, Grindstones and Fixtures, Grain Cradles, Ox Yokes and Bows, Draft and Trace Chains, Cattle Ties, Cheese Presses, Lard and Fruit Presses, Hay Presses, Barn Door Rollers and Rods, Cider Mills, Fan Mills, Sausage Meat Cutters and Stuffers, Apple Parers, Sickles, Grass Hooks and Shears, Curry Combs, Horse Brushes, Bull Rings, Bill and Brush Hooks, Grain Mills, Garden Engines, &c., Plow Castings for all the principal Plows in use, Hay Cutter and other repairs furnished on the most liberal terms. Agents for the sale of the Buckeye Mowing Machine—one and two Horse —the best Mowing Machine in use—Patent Self Sharpening Hay Cutters, Patent Turn Table Apple Parers.

Also, dealers in Grass Seeds, Garden and Flower Seeds in every variety, embracing all the new valuable varieties, Seed Grain, Fruit and Ornamental Trees, Shrubs, Plants and Nursery Stock in general.

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TRANSACTIONS

OF THE

Essex Agricultural Society,

(MASSACHUSETTS,)

FOR THE YEAR

1863.

PUBLISHED BY ORDER OF THE SOCIETY, DECEMBER, 1863.

SOUTH DANVERS:

PRINTED AT THE WIZARD OFFICE, BY CHARLES D. HOWARD.
1863.

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TRANSACTIONS

OF THE

Essex Agricultural Society,

ERRATA.—On page 21st of the Address of Mr. Saunders, 3d line from top, instead of "*none*" read "*more.*"

1863.

PUBLISHED BY ORDER OF THE SOCIETY, DECEMBER, 1863.

SOUTH DANVERS:

PRINTED AT THE WIZARD OFFICE, BY CHARLES D. HOWARD,

1863.

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1864. Dec. 9
By exchange
of duplicates.

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ADDRESS

BY HON DANIEL SAUNDERS, JR., OF LAWRENCE.

MR. PRESIDENT, AND GENTLEMEN OF THE ESSEX AGRICULTURAL SOCIETY:—

In accepting the invitation with which I was honored by your Board of Trustees, to address you upon the present assemblage of your Association, I was not unmindful of the fact that nearly every topic of interest to you, as farmers, upon the subjects of husbandry in agriculture, horticulture, pomology, stock raising, farm management, and farm life generally, has been illustrated by the experience, the careful thought, the cultivated scholarship, the brilliant genius, and the accomplished oratory indigenous to our county,—a county although strong in natural developments, yet more fertile in mind, and more prolific in mental culture and resource. Nor was I unmindful of the fact, that I had no experience, as the cultivator of broad fields, to present to you, as an example to be followed or shunned; no scientific researches into the chemistry of nature, by which to instruct you how to draw out the hidden treasures contained in the full and flowing bosom of Mother Earth; no fancy theories with which to delight your imaginations, or to allure your exertions to the questionable results of mere ideal speculations; no statistics with which to convince

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you that the cultivation of sorghum will afford larger profits than the cultivation of maize; no facts with which to compare the merits or demerits of the different breeds of imported stock, nor with which to add to your stock of information already acquired by personal observation and experience, or the published observations and experience of others.

Reports of this, and other agricultural societies, and publications of the results of careful and scientific labors of men who have devoted the highest order of talent and energy in developing the wealth, and adding to the spontaneous productions of the earth, by the application of knowledge and science, —have been open to you all, and by many of you read with pleasure and profit.

While questioning my ability to add interest to topics which have been discussed in the annual addresses to the members of your society, by men whose knowledge and experience have given to their views and theories the weight of well authenticated facts, I should, as a matter of justice, declined the honor of your invitation, had I not known that a frequent repetition of the same ideas and facts tended to fix them more firmly in the minds of the hearers, —that although it might require great engineering skill and labor to survey, blaze, and map out the most direct and practicable path through a wilderness, yet men of lesser capacity may follow and tread that path until it becomes a well-defined way, from which any deviation becomes a matter of choice, or the result of carelessness, rather than a matter of necessity. Therefore, you will pardon me if my suggestions are but steps in the track of others; and that I follow rather than strike off into untried ways, as by so doing you will feel on assurance that however faint may be the reflection of the light borrowed of others, yet that it is no *ignis fatuus* to lead you from the right direction into the swamp of untried experiment. I shall, therefore, briefly point out to you some of the prominent landmarks and monuments already set up by the labor and skill of others, and call your attention to

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those finger boards by the way-side which direct towards success in the ordinary pursuits of life.

Success is the end and aim of every one's hopes and aspirations; and there is but little difference in the elements, or their combinations necessary to be used in obtaining the object of our pursuit, whatever may be our avocations. The same principles, carefully followed, will almost invariably lead to the same results, whether those principles are applied to agriculture, commerce, mechanics, manufacture, or any of the professions, arts, or sciences.

So interwoven are all branches of business with agriculture, that whatever affects the prosperity of that, directly or indirectly interests all the others. Even war, with all its devastations, is no exception to the rule; and while it finds constant employment for its grim reaper, death, it also sets in motion the wheels of industry outside of its tracks of desolation, and it is constantly demanding the cultivation of new fields beyond its ravages, in order to supply its insatiable waste; but upon no branch depends so much the comfort and happiness of the great body of the people as upon the success of agriculture. A failure in this branch of industry, if but of a single crop, or even of a single staple production of a crop, brings misery, and frequently ruin, to a large class of people. Therefore, whoever by theory or practice increases the natural useful products of the earth, or improves the quality of those products, tends to promote the happiness of the whole community; and may be regarded as the special benefactor of all those within the reach of his influence.

I presume that it is a conceded fact that agriculture occupying, as of necessity it must, the most important, if not the most honorable, place in all the branches of industry, has not received that attention, nor been brought to that state of perfection, in New England, which almost every other occupation has had and obtained. Nor have its pursuits been so amply rewarded in position and wealth as those of many other branches of labor.

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How, and in what manner, agriculture may be placed in its true position, and its labors fully rewarded, are questions which interest not only farmers, but the whole community. Why is it that while success attends upon the labor of those engaged in commerce, trade and manufactures, the farmer quietly plods on year after year, accumulating but slowly; and frequently at the expiration of thirty, forty, or even fifty years, of hard work, finds that that he is rewarded for all his toil with but a little more than enough to suffice for the wants of his declining years, when labor has become too heavy to be continuously carried on? Is the fault inherent in the farm, or is it in its management? Does the want of success commensurate with labor bestowed depend upon circumstances beyond the control of the the laborer, or does it depend upon the absence of those elements which are conducive to success in other pursuits? In determining these questions, another question arises. What are the elements of success? The experience of the world, and the individual history of the majority of those who have become prosperous in the attainment of wealth, and great in usefulness, answer, that success depends upon energetic and persevering labor, directed by knowledge accompanied with courage, economy, and integrity. Any man with good health and moderate mental capacity, with these elements properly combined and put into operation, may, in the long run, bid defiance to those circumstances over which his neighbor, without these qualities, has no control. And he may feel assured that he is on the highway to social position, with a competence for the present and future, if not with an overflowing abundance.

Are any of these elements, or the combination of the whole, beyond the reach of any person? Let no one answer this question for himself in the negative, until he has made a fair attempt to possess them, and failed, after repeated effort.

Labor, however energetically and perseveringly pursued, improperly directed, without knowledge, is like beating the air; and results only in an expenditure of strength without

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profit, and frequently in pecuniary loss. But, directed by knowledge, it yields golden harvests.

Knowledge, literally, is the accumulation of truths proved and tested by one's own experience or observation; but for the uses of life, and as the foundation of our action, it may be considered the conviction of the truth of any information which has been obtained by our own experience, or the communicated experience and observations of others. It is obtained by steady observation and practice, and to no class is this element of success more necessary than to the farmer; and owing to its want is attributable, in a great measure, the unsuccessful condition of agriculture in this State, as compared with other branches of industry. I do not here mean the want of that education which an excellent system of common schools affords, but I mean the want of that knowledge which is acquired only by deep thought, careful and scientific research, a knowledge which nearly all branches of business is compelled to have, in order to keep pace with the progress of the day; that mental training and working of the mind which evolves theories, and puts them to the test of practical operation.

It is a mistaken idea that, for successful field labor, merely physical training is required. Our farmers require a much higher mental culture than has heretofore been thought necessary. They know altogether too little of agriculture, as a science, and agricultural economy. They are, in their business, but little in advance of larger numbers of public men and legislators, who, neglecting to read the present and to scan the future in the light of past history, evince so little knowledge of the science of government and political economy. Agriculture has been too much left to the unaided efforts of nature to compete successfully with other branches of industry, upon which scientific labors have been abundantly bestowed. Ploughing, and planting, and gathering the crops, have been considered labors requiring but little physical, and less mental education. That the only knowledge requisite for the farmer could be obtained in youth by the annual attendance of a few weeks at

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school. This mistaken sentiment has kept the average of our crops far below the capacity of the soil to produce. To-day even, the proper manner of ploughing depends so much upon the nature of the soil, the circumstances of its moisture and dryness, that it is a subject of discussion. How and in what manner to apply manures to secure the largest return, is still a subject of experiment and uncertainty. How many farmers are there who can by any knowledge they have obtained by merely planting and reaping their lands, give any accurate statement of the capacity of those lands to produce? How many know the nature of the soil of their farms, what ingredients it abounds with, and what it lacks for the successful cultivation of either the cereal or root crops; to what extent rotation in cultivation is necessary; what crops should follow in rotation; what particular benefit, if any is obtained, by allowing lands to lie fallow; what is the best and most economical method of keeping pasture lands in good condition; when is the most favorable time for harvesting grain; what the most economical manner of feeding out hay and other food to cattle. All these are subjects of the highest importance, and should be thoroughly understood by all who own or cultivate the land. Yet upon every one of these subjects there remains a great amount of knowledge to be obtained by study, deep thought, research and experience, before they can be properly understood, and most profitably carried into practice. In fact, agriculture must be felt and understood to be a science ennobling in its study, and as honorable in its practice as it is beneficial to the human race in its results, before it can assume its proper place and sphere. So long as it is regarded as a mere industry to be learned and fully understood by a routine of physical labor, its study will be neglected, its highest attainments remain undeveloped, and its greatest treasures continue buried in the earth. But if we raise it to its true dignity, to that of an art and a science, our highest mental faculties become interested and invigorated in its study; and we ourselves become ennobled in its practice. And why may it not be recognized as a science? Certainly the

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ascertainment of natural laws, and their relations to each other; their physical effects in the production of vegetable and animal life is one of the greatest of sciences, and the application of these laws to the uses of man is truly an art requiring systematic knowledge, and to which men of the highest intellect may well and honorably devote their labors.

Creation exhibits the power of Omnipotence. Yet how near to creation is that power which has produced from the wild crab apple that splendid fruit which adorns our orchards; from the thorny and acrid wild choke-pear the many varieties of that delicious fruit which has graced the tables of this Society; which has produced the powerful dray-horse, the fleet courser, the docile and spirited carriage horse, from the single span which Noah took into his ark; which has produced the great varieties of useful and domestic kine from the wild cattle of Tartary, and the highlands of Scotland; which has tripled the fleeces of sheep, and which has brought into existence those endless varieties of fruits to indulge the taste, and of flowers to delight the eye. Where can limits be placed beyond which the power of man may not extend; or where is the bound which can be set to the advancement of science in the production of useful vegetables and animals, for the comfort and luxury of our race.

The Duke of Argyle, in a speech of great eloquence delivered in August last, at Kelso, before the Highland and Agricultural Society of Scotland, said, — "The interest which he took in these agricultural shows was always the interest that arose from the extent to which the power of man was exhibited over the animal and vegetable worlds, in creating almost, as it were, new species for his own benefit and his own use. He would not say the power was unlimited, but he would say it was a power of which the limits were not known, because the end had not been arrived at, and probably never would be." Science, in its researches, is constantly developing new treasures and inviting to new delights in new discoveries, and opening new fields for thought and labor. Now, merely

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ploughing the ground, sowing the seed, and reaping the harvest, will never of themselves lead to the highest principles and practice in farming. Improvements in husbandry, as in mechanics, may sometimes be the result of accident; but are, with few exceptions, the result of careful study and deep thought. Our best and most successful farmers are reading and reflecting men. — men who know how to combine figures and how to investigate theories; who, by careful reading, have learned by the experience of others, and who, by observation, have become acquainted with the relations between cause and effect; who have studied the comparative value of the different crops, and the effect of climate and season upon the same; who have calculated the cost of cultivation, and the net profits of their productions; who, by means of study and observation, have learned not only how to save expense, but also how to increase the quantity and value of their products. If you will but cast about your eyes, you will observe a great difference in the appearance of farms. That farms, equal in the quality of soil, and upon which an equal amount of physical labor has been bestowed, present very different appearances, examine them from what point you will. How is the difference to be accounted for? The land is the same, the labor expended is apparently the same; but yet the labor is not the same. On the one it has been entirely physical and mechanical, a labor that is apparent to the eye; on the other, there has been a labor unseen at the time, yet constantly felt in the direction which it has given to that which is seen; a labor which has made the fields greener, which has stored the barns fuller, which has improved the diary, which has put more gloss upon the coats of the horses, and more fat upon the ribs of the cattle; which has put more comfort in the house, and more money in the pocket. This labor has been the labor of the head, the work of the brain, giving systematic direction to the labor of the hands. Here has been a two-fold labor working in harmony together, and the accumulated results are visible to the world. You need to work your minds upon your farms as well

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as your horses and oxen, and the one wants training as much as the other. Let your colts and steers grow up without breaking into work, and they will not be worth much when they attain their full growth, either for field or road labor; but put them to the yoke and harness young, you will find their strength increasing with age and practice, and their power made productive in useful work. So it is with the mind, if left undisciplined; its natural strength will be comparatively useless for systematic labor; but if properly trained for the work to which it is to be devoted for life, its labor will be found fully equal in productiveness to the physical labor which it will direct.

What is wanted by our farmers is an education that shall not only accumulate facts, but which shall enlarge the mind, develop the powers of the brain, widen and deepen the channels of information, and bring into operation those latent elements of mental perception and concentration. And when these powers, which every one possesses in a greater or less degree, are fully set to work in agricultural pursuits, then shall be seen our farms, gardens in productiveness, and sought by business men not only for pleasure but for profit. Then our farmers, instead of thinking their brightest and most intelligent boys are fit only for lawyers, doctors, or ministers, will give them an agricultural profession, in which they may contribute in the highest sphere of human labors towards human happiness; and in which they may acquire both honor and wealth. But you ask, how shall this education be acquired? I answer, in the same way and manner that knowledge is acquired in other professions, arts, and sciences, by schools and colleges where a thorough and scientific education may be obtained in all those matters which pertain to agriculture in its broadest sense, to agriculture as a science and as an art. Happily our State and National Legislatures have turned their attention to the importance of this subject, feeling that for its advancement a thorough and mental culture, is as necessary as physical training. Congress has already made conditional endowments

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for agricultural education upon a permanent basis; and with a view not only to collect and disseminate useful information, but also with a view to systematise the experience of the past to form theories, and to test their value and uses by practice, and by a thorough analytical investigation of the laws of nature, as applied to vegetable and animal life, establish safe deductions, and so to systematise and present the knowledge of agriculture, that its general principles may be within the reach of all. Some of the States have already signified their acceptance of their endowments; and I trust none will neglect to avail themselves of this great future source of wealth and national prosperity. It may not be within the reach of every young farmer to avail himself of the whole benefit of these schools and colleges by personally studying within their walls, but the light which will be shed from these institutions will be spread over the whole land, and enter the house of every farmer. The knowledge and ideas there generated, will be found in our agricultural reports, in our agricultural papers; and they will permeate through every household. The knowledge thus acquired will be observed and marked in increased prosperity; in labor saved; in additional comforts; in new varieties of vegetable life; in increased beauty and usefulness of our stock; in larger farming capital, and in better farms.

Every farmer is interested in the promotion of these schools, and to their erection and endowment he should contribute by his influence and his money, being assured that by and through them is a way to honor and profit in all branches of husbandry. Knowledge, although a power of the highest magnitude, must be used, and, in these days of rival interest, must be used with energy and perseverance to accomplish much. Energy, we all feel, is essential to the successful prosecution of any undertaking of importance; it is an element as useful to the farmer as it is to the General commanding armies. It is a trait conspicuous in every community where it exists; so much so, that frequently half a dozen active, energetic men give a character of enterprise to a village or town. If we have it, it is easily

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communicated to those about us and under our immediate influence. Let a farmer go into his fields with a walk and motion indicating a decision of purpose, activity of thought, and celerity of action,—his very bearing will communicate an electic shock, and will vitalise the movements of those in his employment. His very cattle will feel its influence, and his work will progress well and rapidly without hurry or bustle. On the other hand, a man, however diligent he may be, who enters upon his work as though he had a life-time to complete the labors of the day, indecisive as to what first requires his attention, uncertain as to what it is best to do; his whole manner, instead of infusing life and activity into those about him, enervates all their actions. And it will not require the second look at night to note the difference in the work accomplished by these two men, although the same hours have been spent by both in labor. But it may be claimed that energy is a natural trait of character, that is exhibited only in the person of a comparatively few individuals; and what God has not implanted in the heart or brain of man, it is useless to attempt to ingraft for the purpose of growth. Undoubtedly, all men are not born equal; and the advantage which God in his wisdom gives to one of his children over another in energy of character, capacity of mind or strength of body, will be maintained through life if these greater capacities are properly used. But to nearly all God has given some capacity, moral and mental, and where natural power is weak there is the more necessity for nourishing and cultivating that power. When it will not grow spontaneously, it should receive the care which we give to exotics; energy is a power which, once rooted, will throw out branches with the luxuriance of a vigorous tree; it is a trait that may be educated and strengthened, and the more it is cultivated the deeper and broader will be its roots, until at length, instead of requiring care and nursing, it will of itself give breadth and strength to all other mental capacities. By it the resources of the mind become enlarged. The performance of arduous labors becomes comparatively easy, and

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work, instead of being a toil, becomes an invigorating pleasure, strengthening the muscles, giving tone and elasticity to the mind; it pulls up the stumps in your mowing fields; it makes brush fences give place to substantial walls; it drains your land, warms the earth, builds large barns, and fills them too. Little incidents in every day life attests its value. One of the most successful farmers of this county, a gentleman educated to commercial pursuits, taking up farming as a matter of pleasure, but applying to it the energy which had assisted him to wealth in other labors, has made his farm not only a source of pleasure, but of profit also. When most farmers were suffering loss in their hay crops by the drenching rains of the past summer, his barns were stowed with sweet and nutritious hay. By keeping his lands in a high state of cultivation, his grass was ready for the scythe before the rains set in, and being ready, it was cut and cured, a large part of it in the barns. But one day, at evening, some twenty-five tons were still standing in the cock, ready to go in the next morning; but the afternoon had given indications of rain, which the evening more fully confirmed. Instead of doing as most farmers would have done, sitting down quietly, hoping that by some possibility the signs might fail, and vainly regretting that he had not began his work a day earlier, he called his men together after supper, and said: that hay must be in the barn before morning; I want you to work to-night. The men, seeing the receipts of the extra labor, and feeling the influence of their employer's energy, went to work with a will, and just as the first drops began to patter in early morning, the last load was standing upon the floor of the barn. And the next day, and the next week, the rains that with scarcely a glimpse of sunshine between the showers, were souring and rotting the mown grass of a majority of our farmers, were refreshing and invigorating his closely mown fields, and sending up a second and luxuriant crop, while the first was safely housed in his spacious barns. Another farmer, with like energy, finding the weather just preceding the rains favorable for curing hay, employed a large ex-

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tra force, and thus secured his crops by the expenditure of much labor in a short time. These are but simple illustrations of what energy will accomplish in individual instances; but this trait of character carried into the daily business of life shews its results almost as conspiciously as in the cases above related. To men possessed of energy and courage, circumstances are compelled to yield; without them, circumstances govern and control.

Courage, which commands the admiration of the masses, is considered merely that quality of the mind which looks upon physical danger with unblanched cheek and unshaken nerve; although necessary to the soldier and those exposed to great personal risk, has not been thought essential to the more quiet labors of the farm, and those civil pursuits where a well ordered life has been supposed to be under the protection of law, and safe from violence or encroachment. Yet courage is as needful to the farmer, as to the soldier or sailor. To be sure, in his avocations he is not exposed to the danger of carrying batteries or storming forts; no climbing masts and reefing sails in a hurricane. And still of this quality our farming yoemanry are not deficient, and they will be false to their past history and their parentage when they show any lack of this element. But for all that they need a courage which I fear but few of them possess,—a courage less brilliant, perhaps, than that which has won fame for the heroes of those desperate battles which have drenched our soil with fraternal blood, and filled the land with the wail of thousands of widows and the cry of hundreds of thousands of orphans. They need a courage which will face and overcome all difficulties in acquiring knowledge; which will pay its price and test the value of the application of science to labor; which is not afraid of large expenditures in permanent improvements. A courage that will put into operation labor saving machines; that will lay draining-pipes; that will not be afraid of inovation upon farm ideas and practice. A courage that will stock their farms with the best herds of cattle; a courage that will resolutely keep pace with

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scientific progress in other industries. One great fault of our farmers is, they are afraid of spending money in their business. If their farms are paid for, they think putting money in the savings bank, or letting it out upon mortgage securities, or timidly investing it in a few railroad or bank shares, the best uses to which they can apply their earnings. What would be the fate of the merchant who should act upon this principle; who should be afraid to invest his profits in increasing his business capital up to the wants and capacity of his trade? Without increasing his capital, he might continue to do a safe and limited business; but the luxury of great liberality, which wealth rightly used affords, would never be within his reach, and we should have neither princely merchants, nor merchants with princely fortunes. Without business courage, the stage coach would never have given place to the swift and commodious rail-car, nor would steam have held its direct course upon the ocean against wind and tide. Where is the farm in our county that has been made to yield to its full ability? Where the farmer to-day who cannot make improvements that will pay more than six per cent. upon the money needed for such improvements; and which, at the same time, will stand as the best of securities for the capital invested.

In this connection, I may speak of economy, which is never allied to parsimony. The two are antipodes with each other, as well in practical operations as in legicographical definition. The one means a judicious use of money expended to advantage without waste. The other a wasteful hoarding by saving necessary expense. Economy would stop the leaks in the roof before the rains had damaged the plastering of the walls. Parsimony would wait until the crumbling of the plastering required the services of the mason as well as of the carpenter to return the house to a habitable condition.

Liberal and judicious expenditure in promoting any business is generally the greatest economy that can be practised, and this holds good with the farmer as well as with the mechanic, the manufacturer and the merchant. A man who pursues a

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niggardly and parsimonious system with his farm, has no reason to expect that his farm will yield to him bountifully of its products. It won't do to starve it, and then expect it to do the work of one that is strong and well fed. It is no use to expect a farm to thrive on mere husks; the storm-beaten and sun-dried excretions of cattle thrown out of a hole in the side of the barn, exposed to the alternate drenching of rain and scorching of the sun, will not satisfy the natural cravings of the soil; and however strong may be the constitution of your land, you will find it in the end getting low and weak on that kind of diet. It will then require strong stimulants to keep it at work up even to a moderate production. It is pretty poor economy that will stint good land until it becomes so weak that it can hardly hold up a ton of hay to the acre; yet in Massachusetts the strength of the land has been reduced by this kind of management so that the average yield of hay is less than a ton per acre. This kind of farming is not the kind that pays large wages to the laborer on a high rate of interest to the capital invested. Economy requires that your lands be kept in good heart, improving in quality year by year. To do this, if you sell hay, you must purchase manures; if your land is wet, you must not be afraid of the expense of labor and material to drain it; if it is cold, you must warm it with stimulants. All this takes money, and money thus expended, even in large amounts, is good economy, and in the end the investments will pay large dividends.

If our farmers owning their lands in fee, had half the courage of some of the tenant farmers in Europe, we should see a vast difference in the looks of our fields; in the size and number of our out-buildings and barns; in the number of cows in in our yards; in the weight and condition of our market cattle. Then agriculture would not be so far behind manufacture in profits and general success. It was said by the Duke of Argyle in the speech before referred to, "That no country in the world had advanced so rapidly in the science and practice of agriculture as Scotland, during the last century; and that

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had arisen from the industry, enterprise and expenditure of capital of its tenant farmers. The capital of great mill owners is always to be seen in their great factories, warehouses, and their machinery perpetually in motion,—all of which strikes the eye. Whereas the capital of the tenant farmer is literally buried in the earth. In a work upon agriculture of the two great border counties of Roxburgh and Berwick, I find that on one farm the tenant had expended in the first three or four years of his tenancy £9000 in draining and artificial manures, and on a farm of less extent, another tenant farmer had expended £5000 in a similar manner; and unless these men had been confident that in the course of their leases they would have got their money back with interest, they would not as Scotsmen have so spent their money."

As an illustration of what courage and energy, directed by scientific knowledge, will do in the cultivation of the soil, I need but refer you to the well known Tiptree Hall Farm of Essex County, England, the property of Alderman Mechi, of London, who, some twenty years ago, purchased about one hundred and thirty acres of barren heath land, supposed to be worthless for the purpose of agriculture; but with an industry and an amount of capital expended that would frighten many of our boldest business men, he has converted that barren waste into fields unsurpassed in richness, and wrought it to such a state of productivenesss, that he is now annually in receipt from it for all his capital invested in the land and improvements, nearly three-fold the rate of interest then paid for the use of money. For a brief description of this farm and its wonderful improvements under the direction of its bold and successful owner, I would refer you to the statements concerning it, made by the Secretary of the Massachusetts Board of Agriculture, as contained in his interesting report of his visit to Europe in 1862, a report well worth reading, both from the pleasure and profit that may be derived from its perusal.

It is not to be expected that our farmers, generally, can as yet compete in wealth, or the ability to make improvements,

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upon the same scale with the rich farmers of the best portions of Europe, and for the very reason that our farmers have not for a long series of years given the same importance to farming that European farmers have; they have not applied the same energy and talent in this business which they have done. Other branches of industry have been more attractive in this country. Fortunes acquired by bold and successful dashes have so captivated the imagination of our young men, that that they have rushed from the slower and more quiet routine of farm life into the whirling eddies of speculation and trade, out of which they hope to emerge with wealth sufficient to return once again to the old homestead, where they may enjoy their fortunes in the peaceful retirement of rural life, outside of the bustle and tumult by day and the anxious thought by night, which constantly abide by the man seeking riches with hasty steps.

Let our young men be content to apply to the farm the same energy, the same zeal, the same labor, the same learning, which they are willing to devote to the more hazardous business which now engrosses the attention of so many of them; and although they may not reap wealth so abundantly as some of their neighbors engaged other pursuits, yet they will find less disappointments. There will be fewer upon whom fortune will frown, and many more who will obtain that competence which suffices for all needful wants, and sufficient for a generous liberality. Nor will the other branches of trade, mechanics, commerce, or manufacture, suffer by increased attention to agriculture. Thrifty agriculture will demand more labor saving machinery, better farm implements, more manufactures of all kinds, induce emigration from the overstocked population of the great cities of other countries, and will give increased impetus to all business; for upon agriculture all other business is based and supported.

Upon the subject of integrity, as useful and necessary to prosperity in our mutual dealings and transactions with each other, I need not dwell. That honesty, in the long run, is the

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best policy, is a truism which has been established by the experience of ages; and amongst our farmers and in the rural districts, this virtue is of natural growth. But care should be taken that it does not become choked by vicious weeds. It is a principle which applies alike to the farmer, the merchant, the shoe-maker, and the statesman. It applies alike in time of war as well as in time of peace; it applies alike to governments and to individuals. That all is fair and honorable in war and politics, is a maxim founded in barbarity and dishonesty, and will never lead to permanent honor and success. Shoddy contractors may practice it, and fill their pockets with ill-gotten gains; they may glitter in the tinsel which gold will purchase, but the contempt of an honest people will cover them with shame. Mere politicians may arise from obscurity for a while to position and place by its secret machinations, but their policy followed to the end will invariably lead to disaster not only to themselves, but to a people controlled by their counsels. Integrity is that wholeness of mind which contemplates the entire extent of our obligations, as individuals, in our mutual relations one to another; and as citizens in our relations to society and to our country. It does not simply require us to abstain from over-reaching in trade, from taking advantage of the ignorance or confidence of those with whom we contract, but it also requires the performance of every duty which we owe to our families, our neighbors, and the community at large.

First as to the duties we owe to our families. Conjugal, parental, and filial affection would seem to be a sufficient incentive to the full performance of every duty at home. Home happiness is the highest of all enjoyments, and he who fully possesses that is truly a successful man. Yet how many there are who have never realized the full enjoyment of this success in life, from inattention alone, when little care and forethought would have sown seed, the harvest of which would have been abundant happiness.

Our farmers rise early and toil late; they look after the comfort of their cattle; they give them food and good shelter;

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their horses and oxen receive early training and education for the labors they are to perform. How many are there who give their families none. Of affection there is no want; of real, heartfelt love there is no lack. But of sympathy, of interest in those little things which make the daily life of each member of the family, there is a lack of expression which prevents the members from fully entering into the enjoyments, or appreciating those little perplexities of each other which, to say the least, if it does not cool, renders less cordial the home relations. Parents, perplexed with care and labor, are apt to forget that amusements, wholesome and rational, are essential to the child, as well as food and clothing; that if amusements are refused them in childhood and youth, dangerous follies will most frequently be sought and explored in early manhood, when paternal restrictions are removed. Let parents fully appreciate all the necessary wants of their children; enter into all their little joys and griefs, participate in and give direction to their innocent amusements, and they will find the child drawn to them with bonds of the strongest sympathy; and that these amusements not only give pleasure for the hour, but elasticity and strength to both mind and body for the labors of life.

Let the husband, by little attentions, anticipate the wants of the wife, and he will find a light in the house more cheerful than the blaze of fire upon the hearth in a winter evening. Let his garden be well stocked with the various fruits for his own table, and his yard with flowers, he will find that it requires but little to interest his boys and girls in their cultivation and improvement, and that health and pleasure will more than pay the cost. Let him look carefully to the education of his children, not trusting to others' oversight alone those matters which most concern their future welfare.

Let him interest himself, personally, in all that pertains to the household, not expecting that the house and its inmates will provide for its social happiness without his supervising care. Then will he appreciate the blessings of a dutiful family,

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and as his children grow up he will enjoy the conscious satisfaction that he is leading them in the path of usefulness, to honor and respect of their fellows.

To our neighbors we owe reciprocal kindness, in word and action. These duties are so various, and yet so patent, that the words "good neighbor" cover them all. They require the building of school houses for the mental training of the young; of churches where the doctrines, precepts and religion of our Divine Redeemer may be taught and expounded. They require social life and interest—an interest that shall lead to action in all those matters which benefit a neighborhood.

What do you imagine would be the condition of our common schools, compared even with their present high standard, provided every individual in his district took and felt that interest in the subject of education which its importance fully demands, if the school meetings were attended by every one having a right to act therein, with the sole purpose of promoting the welfare of the rising generation?

Any district which would act up to the extent of this principle, would soon find itself conspicuous in educational reports; and the performance of all obligations resting upon a neighborhood would soon place that community in the highest position in point of happiness and general prosperity.

The duty which we owe to the country is peculiar to us, differing, in a great degree, from that of other nations. With us, the aggregate recorded expression of the will of the people is the law of the land. Every man should assume the responsibility of giving expression to that will, according as his reason and judgment directs, uninfluenced by partisan passion or prejudice. He should be ready at all times to yield his opinions when they are not supported by reason and experience. The theory of our institutions, that the people are capable of self-government, can only be sustained upon the basis of enlightened judgment in the expression of popular sentiment. Therefore, while we have the right to direct, by means of the ballot, the policy of our government, so grave a duty should be per-

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formed advisedly, upon due consideration of all arguments that can be brought to bear for or against that policy; otherwise political action would be but a blind impulse of the passions or feelings leading to unswerving opposition, or unconditional support of men and measures. It is the duty of every patriotic lover of his country to assist in moulding public sentiment in a right direction,—to counsel obedience to law, knowing that only by means of a sound and stable government, supported and controlled by constitutional law, can he enjoy the fruits of his labor, or find protection in his property or person.

We should require the enactment of just and wholesome laws, and while seeking their protection or enforcement, should ourselves give a ready obedience to the same. We should respect the dignity of office, and render all loyal aid and assistance to those who administer the affairs of the nation. And at this time, when civil war is shaking the pillars of our Government to their very foundations, and while the ship of state is battling in storm and tempest with billows lashed into fury by sectional animosity and hate, he who refuses the aid of his lips, of his arm, and of his heart to them who hold the helm while directing the ship aright, and he who withholds his warning voice when breakers are seen ahead—are alike foes and traitors to their country.

In this great ordeal through which our country is passing, every man has a duty to perform. Justice to his family, to his neighbors, to his country, and to his posterity, alike demand performance, however great the sacrifice may be. Rebels in arms must be taught to respect the sovereignty of law, and the power of constitutional government, and when obedience shall be enforced, or yielded, then it will be our duty to shew that clemency is the attribute of greatness,—that no bond of union is half so strong as that which is riveted with love and fraternal feelings.

When that time comes, then shall we have an honorable and permanent peace, in which plenty shall rejoice the husband-

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man, prosperity bless all classes and sections of our common country, and the gratitude of a nation shall keep green the memory of its living and fallen heroes. Then shall we emerge from the calamities and dangers which now beset our path with a strength to vindicate our rights at home and abroad—with power to rebuke foreign interference and to maintain the policy of our republic in the face of the world.

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ORIGINAL ODE.

Once more a festive band to-day,
In festive halls we meet,
And gathering from our scattered homes,
Our friends and kindred greet.

This ripened fruit, this bending grain,
This wealth of floral bloom,
Unite to fill the favored hour
With gladness and perfume.

The seed was sown in patient toil,
Not knowing which should thrive;
But trusting Him whose care alone
Could keep its germs alive.

To-day, on other, sadder fields,
Yet other seed is sown,
And when its harvest day shall rise,
God knoweth—He alone!

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That field, enriched with blood and tears,
Shall yield its full increase,
And bear in fruitage full and free,
A sure and righteous peace.

Already glowing streaks of dawn,
Break on the midnight gloom;
Round Sumter's grim and battered walls
Heraldic cannon boom!

We bide our time! The day shall rise,
The harvest-day, ere long.
The Lord of Harvests' be the praise!
And his the Harvest Song!

While 'mid the fruits a *nation* reaps
And layeth by in store,
Be peace and freedom truth and love
And *union* evermore!

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REPORTS, &c.

The Cattle Show and Exhibition was held at Andover, Tuesday and Wednesday, September 29th and 30th.

PLOUGHING—WITH DOUBLE TEAMS.

The Committee on Ploughing with Double Teams report that twelve teams were entered for premium. We award the first premium of $10.00 to J. L. Farnum and A. P Fuller of North Andover.

The second premium of $9.00 to Jacob Farnum, of North Andover.

The third premium of $8.00 to J. & D. L. Goodrich, of W. Newbury.

The fourth premium of $7.00 to J. L. Newhall, of Newburyport.

The fifth premium of $6.00 to M. F. Hill, of Byfield.

The sixth premium of $5.00 to M. H Poor, of West Newbury.

DANIEL CARLETON,
HORACE WARE,
PAUL D. PATCH,
HENRY KNIGHT,
GEORGE H. POOR.
} COMMITTEE.

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PLOUGHING—WITH SINGLE TEAMS.

The Committee on Ploughing with Single Teams have attended to their duties, and report that the whole number of entrees was three, and they award the first premium, of seven dollars, to William R. Cole, of West Boxford. Time, 1¼ hours.

Second premium, of six dollars, to Henry Hill, of North Andover. Time, 1 hour and 40 minutes.

Third premium, of five dollars, to Richard T. Jaques, of bury. Time 1 hour and 45 minutes.

DEAN HOLT,
DANIEL T. MORRISON,
PAUL TITCOMB,
S. A. MERRILL,
JAMES FLINT.
} COMMITTEE.

PLOUGHING—WITH HORSES.

The Committee on Ploughing with Horses have attended to the duty assigned them, and awarded the premiums as follows :—

The 1st premium of $8.00 to Samuel Foster and A. P. Fuller, of North Andover.

The 2d premium of $6.00 to Moody S. Dole, of Georgetown.

The 3d premium of $3.00 to J. B Jenkins, of Andover.

WILLIAM H. FELTON,
J. G. LITTLE,
JASPER REA,
JOHN T. WOOD,
A W. SMITH.
} COMMITTEE.

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FAT CATTLE.

The Committee on Fat Cattle make the following report:—
Whole number entered, ten, as follows:
C. P Preston, of Danvers, two oxen.
Jedediah H. Barker, North Andover, two
Samuel Moody, Jr., Newbury, two.
Daniel Carleton, North Andover, two.
John T. Wood, Boxford, two.

First premium to C. P. Preston, for the best fat ox, $10.00
Second " to Jedediah H. Barker, " " " 8.00
Third " to Samuel Moody, Jr., the best grass fed oxen, $5.00

S. G. VALPEY,
JOSEPH ACKERMAN } COMMITTEE.
ELBRIDGE MERRILL.

WORKING OXEN.

The Committee on Working Oxen respectfully report:—

Your Committee were pleased with the work of the oxen; seldom have they done better. Praise is also due to the teamsters in being so quiet in the performance of their part of the work. As the rules of the Society require the age and weight of the cattle, and weight of load, exclusive of wagon, we have inserted below the full particulars of the same. There were sixteen pairs entered for premium, of which twelve pairs appeared on the ground for trial:—

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No.		Age.	Weight.	Load.
1.	Moses H. Poor, West Newbury,	4	2610	2 tons
2.	Richard S. Bray, Newbury,	4	2335	2 "
3.	David L Goodrich, West Newbury	4	3110	2 "
4.	William Foster, North Andover,	7	3312	3 "
5.	Mark H. Hill, Byfield,	7	2415	3 "
6.	William R. Cole, Boxford,	7	2635	3 "
7.	John T. Wood, Boxford,	6	3600	3 "
8.	Benjamin H. Farnum, North Andover,	4	2490	3 "
9.	Joel Wilkins, Danvers,	4	3030	3 "
10.	William Foster, North Andover,	4	2840	2 "
11.	Nathan B. Abbott, Andover,	7	3025	3 "
12.	Joseph Goodrich, West Newbury,	6	3205	3 "

We have awarded the premiums as follows :—

To Joel Wilkins, Danvers, 1st premium for his oxen, weighing over 3000 lbs—$10.00

To Joseph Goodrich, West Salisbury, 2nd premium for his oxen weighing 3000 lbs—$8.00.

To Moses H. Poor, West Newbury, 1st premium for his oxen weighing under 3000 lbs—$10.00

To Mark H. Hill, Byfield, 7 year old oxen, 2nd premium for oxen weighing under 3000 lbs—$8.00.

In deciding which cattle were best entitled to a premium, it is a difficult task, where all do well. In awarding the premiums for those weighing under 3000 lbs, there are two things to be considered. Shall we award the premium to a small pair of oxen, six or seven years of age, that have been worked hard and are thin of flesh, and can perform the work for the present time well; or shall we give it to a pair of four or five year old oxen that cannot perform the work for the present time as well, but are actually better cattle, and are more valuable to keep for oxen hereafter. Your Committee would recommend that the premium to be offered hereafter be given for the best pair of oxen 4 and 5 years of age, instead of for weight; also for the best pair of oxen six or seven years of age. The

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reason is we must have the young ones before we can have the older ones, and we want to encourage farmers to raise up young oxen.

JEDEDIAH H. BARKER,
GEORGE DANE,
RICHARD T. JAQUES,
CALVIN E. POOR,
JOHN WHITTREDGE,
} COMMITTEE.

BULLS.

There were nine entries for premium. After carefully examining them the Committee would recommend the following premiums:—

To J. Longfellow, of Byfield, for his young bull, the first premium for bulls of foreign breed, $10.00.

To Asa M. Bodwell, of Lawrence, for his grade bull, the first premium of $5.00.

To C. P. & O. Bailey, of North Andover, for their grade bull, the second premium of $3.00.

To Albert B. Gordon, of Methuen, for his grade bull, the third Premium, "Flint's Book on Diary."

HAZEN BODWELL,
GREENLEAF PLUMER,
D. G. TODD.
} COMMITTEE,

STEERS.

The Committee on Steers report that there was but one entry of 3-year old steers. They award the second premium of Five Dollars to C. W. Hatch, of Haverhill. For two-year olds,

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the first premium of Five Dollars, to Charles Ingalls, of North Andover. The second premium of Four Dollars to J. B. Lock, of Andover.

There were three pairs of yearlings entered; the Committee did not think them entitled to a premium.

HERMAN PHELPS,
F. P. PUTNAM,
THOMAS G. ORDWAY,
JONATHAN BERRY,
CHARLES CORLISS.
} COMMITTEE.

MILCH COWS.

The Committee on Milch Cows report:—

There are three grades and one native cow entered for premium. We award to

Joseph Longfellow, Byfield, 1st premium—$10.00

Jacob F. Jewett, Georgetown, 2nd premium—"Harris's Insects."

George H. Chandler, Andover, 3d premium—$2.

JOSHUA L. NEWHALL, Chairman.

J. LONGFELLOW'S STATEMENT.

The cow I offer for premium is grade Ayrshire, four years old the present month. She dropped her last calf, May 24, and will calve again April 25. In consequence of short feed in the pasture, which is very late, and also a surplus of potatoes, (which were not in demand,) my cows were allowed about a half peck each per day, until the 20th of June, since

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which time their feed has been grass alone. The average weight of her milk for the first ten days in June was 35 lbs. 7 1-5 ozs.; for the first ten days in September, 28 lbs. 3 3-5 ozs., as will be found by referring to the table below. The quality of her milk is good. Driven a mile to pasture :—

JUNE.				SEPTEMBER.			
MORN.		EVENING.		MORN.		EVENING.	
lbs.	*oz.*	*lbs.*	*oz.*	*lbs.*	*oz.*	*lbs.*	*oz.*
1—15	7	1—21	6	1—12	8	1—15	
2—15	7	2—17	3	2—13	8	2—15	8
3—15	7	3—19	9	3—13	12	3—14	8
4—16	10	4—19	10	4—13		4—14	
5—15	7	5—19		5—13		5—15	
6—15	7	6—18	7	6—13		6—14	
7—15	7	7—18	7	7—14		7—15	
8—16	10	8—19		S—14		8—15	8
9—16	10	9—21	6	9—14		9—14	8
10—19		10—19		10—14		10—14	8
161	8	193		134	12	147	8

Byfield, Sept. 28, 1863

JACOB F. JEWETT'S STATEMENT.

I enter for premium one native cow, eight years old. She has had 7 calves. She has been dry 4 weeks only in the time. She gave, the first ten days in June, 23 lbs. milk per day; the first ten days in September, 19 lbs. per day, without grass. She works in the cart as well as a horse.

Georgetown, Sept. 28, 1863.

GEORGE H. CHANDLER'S STATEMENT.

June 1st to 10th, inclusive, my cow gave 183 quarts, (397½ lbs.) milk.

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Aug. 2d to 11th, inclusive, 164¼ quarts, (348¾ lbs.)
Sept. 4th to 13th, inclusive, 141½ quarts, (305¾ lbs.)
Andover, Sept. 29th.

HEIFERS.

The Committee on Heifers submit the following report:—

There were present two 3 years old, in milk, and the Committee award the first premium of $7.00 to Joseph Longfellow, of Byfield.

Second premium of $6.00 to Warren Mears, of Andover.

Of 2-year olds, there were presented five, and the Committee award the first premium of $5.00 to Peter Temple, of Andover, and Samuel Tucker, of Andover, the second premium of $4.00; and to C. C. Blunt the third premium of "Flint's Book on Grasses.

For the best yearlings, they award to J. Longfellow the first premium, $4.00; for the second best, they award the second premium, $3.00, to E. G. Berry, of Danvers; the third premium they award to D. S. Caldwell, of Byfield, "Flint's Book on Grasses."

For the best lot of calves, four in number, they award to B. H. Farnum, of N. Andover, $5.00; for the second best, they award to Daniel Carleton, of North Andover, $3.00; third premium they award to Charles Cummins, of Andover, "Flint's Book on Grasses."

JONA. KING,
E. S. PARKER,
C. H. ORDWAY,
DAVID S. GOODRIDGE,
C. L TOZIER.
} COMMITTEE.

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STATEMENT OF JOSEPH LONGFELLOW.

I offer for premium my grade Ayrshire heifer, three years old. Has had two calves. Dropped her last calf May 24, and will calve again about the 10th of June. Her feed has been grass, with the exception of one half peck potatoes per day, from the time she calved to the 20th of June, in consequence of the pastures being very backward, and of having a quantity of unsaleable potatoes on hand. She has been driven one mile to pasture. The average weight of her milk, per day, for the first ten days in June was 31 lbs. 14 3-10 ozs. For the first ten days in September, 21 lbs. 14 ozs., as will be seen by the table annexed. Quality of milk *good.*

JUNE.				SEPTEMBER.			
MORN.		EVENING.		MORN.		EVENING.	
lbs.	*oz.*	*lbs.*	*oz.*	*lbs.*	*oz.*	*lbs.*	*oz.*
1—15	7	1—15	7	1—11		1—12	
2—14	4	2—14	4	2—10		2—12	
3—14	13	3—16	10	3—13		3—11	
4—14	14	4—17	4	4—12	8	4—10	
5—15	7	5—17	3	5—10	4	5—12	
6—16	10	6—17	4	6— 9	8	6—12	
7—15	7	7—16	10	7— 9	8	7—11	8
8—13	1	8—17	4	8— 9		8—13	
9—15	7	9—16		9— 9		9—11	
10—17	13	10—17	4	10— 9		10—11	8
153	3	165	12	102	12	116	00

Byfield, Sept. 23, 1863.

STATEMENT OF PETER TEMPLE.

My heifer Peggy, 29½ months old, calved May 25 ; has furnished milk for two calves, and for a family, and made 100 pounds of butter ; and now gives from 21 to 24 pounds of milk per day, or from eight to nine quarts per day, beer measure.

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Calves the 20th May, 1864, and makes six pounds of butter a week.

STATEMENT OF E. G. BERRY.

I present for premium 4 grade Jersey, and Ayrshire heifers, all from my stock, and raised from 3 year old heifers.

One is 16½ months old; two are 14 months old, and one is 1 year next December, and raised from a heifer, 15 months old. Their keeping has been common *farmer's fare.* The three first were turned to grass at nine weeks old.

Danvers, Sept. 29, 1863.

FARM AND DRAFT HORSES.

The Committee on Farm and Draft Horses have attended to their duty, and make the following report:—

Ten horses were entered for premium; seven of them came forward for trial. The Committee award to Wm. Peters, of North Andover, the first premium, $8.00.

To Samuel Foster, of North Andover, the second premium, $6.00. JOHN LOW, Chairman.

STALLIONS.

The Committee on Stallions have attended to their duties, and make the following report:—

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They award the first premium of $10.00 to L. P. Demsey, of Danvers, for his sorrell stallion, over four years old.

The first premium of $7.00 to D. H. Patterson, of Methuen, for his three year old stallion.

J. OSGOOD LORING,
HAZEN AYER,
WM. SAUNDERS,
SAML. MOODY, JR.,
IRA P. POPE,
WM. PETERS.
} COMMITTEE.

BROOD MARES.

The Committee on Brood Mares would report, that there were four entries under this class, and after careful examination they were unanimously of the opinion that neither of the animals came up to the standard required by the Society for premium.

WM. COGSWELL, Chairman.

COLTS.

The Committee on Colts award premiums as follows :—

To James Nason of North Andover, for his four year old colt, first premium, $7.00.

To Joseph Coffin, of Newbury, for a four year old colt, second premium, $5.00.

To C. C. Blunt, of Andover, for his three year old colt, first premium, $6.00.

To S. F. Carter, of Georgetown, second premium, $4.00.

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To Abiel Wilson, of North Andover, for his two year old colt, first premium, $5.00.

To G. B. Martin, of Danvers, second premium, $3.00.

To Nathaniel Gage, of North Andover, for his yearling colt, first premium, $4.00.

To Joshua Hatch, Haverhill, second premium, $2.00.

JOHN H. CALDWELL, Chairman.

SWINE.

The Committee on Swine report :—

BOARS.

First premium of $5.00 to Byron Goodell, of South Danvers.

Second premium of $3.00 to James H. Reynolds, of North Andover.

BREEDING SOWS.

First premium of $5.00 to Oliver P. Killam, of Boxford.

Second premium of $3.00 to William Foster, of North Andover.

WEANED PIGS.

First premium of $5.00 to James H. Reynolds, of North Andover.

Second Premium of $3.00 to Chas. O. Cummings, of Andover.

ISAAC CARRUTH, Chairman.

POULTRY.

The Committee on Poultry award as follows :—

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To R. Buxton, South Danvers, on	Geese,	$1.00
" " "	Fowls,	3.00
To Wm. Gafney, Danvers,	Geese,	3.00
To John Swinerton, "	Fowls,	2.50
To David Jameston,	Bronze Turkeys,	2.50
To Wm. Bonner, Andover,	Ducks,	50
To M. C. Andrews,	Pigeons,	50
To J. S. Ives, Salem,	Brama Fowls,	1.50
To W. W. Tracy, Andover,	Fowls,	50

DANIEL BUXTON, Jr., Chairman.

COARSE WOOLED SHEEP.

The Committee on Coarse Wooled Sheep report :

They award to Charles Corliss, of Haverhill, the premium of $5.00 for his flock Cotswold sheep.

They award to D. H. Brickett, of Haverhill, for his Cotswold Busk, the premium of $5.00.

These were the only sheep that were really coarse wooled. The others were more properly middle wooled sheep; but as the Society offered no premiums for such, they were called coarse wooled. We would make honorable mention of the flock of grade South Down sheep, exhibited by Jacob Farnham of North Andover; as we have no material aid to give, we trust he will accept our kind words.

Mr. J. Herrick, of Boxford, entered a flock of grade sheep, ten in number, with 19 lambs.

This flock shows what this kind of sheep will produce, when fed on the poorest fodder and short pasture; and we are not sure that these sheep are not the best for this county. Al-

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though we have nothing to give Mr. Herrick, yet we trust he will feel rewarded for his trouble in exhibiting them, by the thought that he has done something toward adding to the interest of the exhibition.

We award to I. W. Andrew, of West Boxford, the premium for the best lambs, "Harris's Insects." Mr. Andrew's sheep are the South Down, and by many called fine wooled. Although the wool is short, yet, for fineness it cannot be classed with the Merino and the Saxony. We hope the Society will next year avoid this difficulty of classing, by offering premiums for the best lot of the different breeds of sheep.

Mr. Franklin Putnam, of North Andover, entered a lot of Oxford Down Sheep, but not enough of them, according to the rules of the Society, to entitle them to a premium. These sheep did not look so well as those of this breed which we have been accustomed to see at our exhibitions, in years past. It is an important question for the farmers of this county to decide which is the best breed for us, and we can not decide it fairly till we have tested them more fully.

The Chairman of the Committee would state that he has not had an opportunity to consult with the other members in regard to the opinions he expresses; but in the awards, they were united in their views.

We would refer to the able report upon sheep, made last year; and while we would commend much that is said there, we dissent from many of the views expressed. The report says, "In sheep-husbandry it is evident that wool is the *primary* and mutton the *secondary* object." We maintain that in this county mutton or lamb is the *primary* object, and wool the *secondary*.

Sheep-husbandry, to be successful here, must be managed somewhat in the same way that our market gardeners manage their businets. The first inquiry with them is, what can we grow that can not be transported from a distance, for where land is high it will not pay to raise those articles that will keep, or that enter largely into the commerce of the world.

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it matters not to them how cheap potatoes can be grown on the Penobscot, while we have a demand for them here in August, before they can be brought from Maine. So we, if we think of raising sheep, must inquire not what will keep long; not what can be transported well; but for what is there a demand, in which the farmers of Maine and Vermont can not compete with us. We answer, early lambs. Every farmer that has ever kept sheep, knows that there is nothing that grows upon his farm that he can sell so readily at his own door as his early lambs. We are told in the report that 5 cents per pound is the price usually paid by the butcher for mutton. We have kept sheep for four years, and the butchers have been willing to pay five dollars apiece for lambs that will weigh thirty pounds in June.

We have been permitted, within a few days, to look over the books of one of the largest dealers in mutton in this county, and we find that the average wholesale price for lamb in June and July was 15 cents per pound. Perhaps I shall not in future be able to get so much more for my lambs than I shall for my wool, as I have for a few years past. To illustrate my meaning, I will give you the actual sale from one of my sheep for the last three years :—

1861, two lambs, dropped the 5th of March, sold the 15th of June to the butcher for ten dollars	$10.00
Six lbs. of unwashed wool sold at 25 cents per lb.	1.50
1862, two lambs, at 4.20 apiece,	8.40
Six pounds of unwashed wool, at 40 cents per lb., one third shrink,	1.60
1863, two lambs, at $3.60 apiece,	7.20
Six pounds unwashed wool, at 55 cents per pound,	3.30
Lambs for three years,	$25.60
Wool for three years,	$6.40

We would not make this case a general rule, but we think that the lambs from a flock of well kept ewes will sell for twice

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as much annually as the wool. At present we have not a good market for wool in this county, although a large amount is manufactured here, yet when we have asked the dealers to buy wool, the answer is, we do not wish to buy of the farmers, we prefer to have it in large lots. If more sheep were kept, we should undoubtedly have a better market for wool.

We are aware that it may be said that it requires more care and attention to raise good, early lambs than it does to produce wool. This is the kind of farming that we need here. Those that would wish to get along in a slip-shod, hap-hazard way, had better go to Texas and raise wool.

We would again quote from the report:—"That we can feed sheep profitaby there is no doubt, but they must be adapted to our agricultural circumstances." Now, what are our agricultural circumstances? First, we have a good market for lambs, and a poor one for wool.

Second, our pastures are poor in August and September, therefore we should keep that breed of sheep whose lambs will be fit for market early. If we keep the fine wool sheep, their lambs are too tender for the severe weather we often have in March; if they do not come till the warm weather, they must be kept with the ewes till autumn.

Thirdly, we can raise roots advantageously here, and those with second crop hay are what the ewes need to make good, early lambs.

In feeding sheep in winter, I have often noticed with what avidity and apparent relish they eat the heads from clover hay. Why is this? Chemists tell us that wool contains a large amount of those elements, found in beans, and this is why sheep are so fond of them. Botanists say that clover belongs to the bean family of plants and must therefore contain more that will produce wool than other hay. I have often noticed that sheep will select the herdsgrass and leave the red-top hay, while the cow will eat the red-top and leave the other.

I would call the attention of those who manage our experimental farm, to trying the experiment of raising beans upon

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an acre of that plain land, for the purpose of feeding to sheep, without threshing.

We regret that those who exhibited their sheep did not give us a more particular account of their mode of keeping them, and of the income of their flocks.

We would not close this report without calling the attention of farmers to the effect of sheep upon farms. We are satisfied that if they are permitted to roam over the farm in early spring, they do a great injury to the young grass. We have sometimes thought that the manure in winter was not so valuable as that made from the same food given to cows, because sheep should be kept out in the air more than cows, and this exposes it to waste; as to the pasture some say they injure it by biting too close. We have begun the experiment in trying to reclaim, by sheep, about twenty acres of rough, rocky, bushy pasture. I have noticed that they do not eat the huckleberry bush; but are fond of the berries when they begin to ripen. The blue-berry bush they eat much; the sweet-fern they do not eat except very early in spring; the butter-cup they like, the indigo-weed at some seasons they will eat; briars, when young, they eat; the barberry bush, where they can reach, they kill in a short time.

How long it will take to make a very decisive improvement in such a pasture as this, I can not tell at present; we begun with the expectation that it would require five years of close feeding to effect a very permanent change.

WM. R. PUTNAM,
T. C. THURLOW,
OTIS BAILEY,
PAUL D. PATCH,
N. W. MOODY.
} COMMITTEE.

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FINE WOOLED SHEEP.

The Committee on Fine Wooled Sheep report:—

There was but one entry for the premium offered for this class of sheep, and that was a full-blooded Spanish Merino Buck Lamb, six months old, offered by Samuel Moody, Jr., of West Newbury. This animal, strictly considered, does not come under either class for which the premiums were offered; but inasmuch as it still remains an unsettled question among the farmers of Essex, whether it is most profitable to raise more fine wool and less mutton; or, less coarse wool and more mutton. And as the discussion has been carried on for several years, more theoretically than practically, (for we have had no full-blooded, fine wooled sheep in the county of late, by which the comparison could be fairly made,) your Committee concluded that the Society is under obligation to Mr. Moody for the trouble and expense of introducing a fine specimen of the celebrated Spanish Merino breed of sheep. It is to be hoped that Mr. Moody will not spoil the experiment by allowing his lamb to be used as a buck until he is sufficiently mature to propagate his species without injury to himself or his progeny, which, in the mind of your Committee, will be when he is one year older. Many a fine buck has been spoiled, and the reputation of superior breeds of sheep has suffered, by the use of a lamb for a buck. The temptation is great, but failure certain.

Mr. Moody added to the interest of the show by the exhibition of a full-blooded South Down ewe, sixteen years old, apparently in the full vigor of early maturity; she has reared twenty-eight lambs during her life, and certainly appears now to be capable of rearing another dozen. When a sheep of six or eight years is usually considered only fit for the shambles, and hardly that, such a specimen of vigorous, healthful longevity is a matter of much interest.

The Committee does not wish to break the rules of the Society, which forbids awarding gratuities, but would recommend that the premium of $5.00 for the best fine wooled buck, be

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awarded to Mr. Samuel Moody, Jr., of West Newbury, for his buck lamb.

BENJ. P. WARE, for the Committee.

[The following communication was received from the Chairman appointed on the Committee on Fine Wooled Sheep, he being unable to attend the Exhibition.]

DANVERS, Sept. 28, 1863.

CHARLES P. PRESTON, Esq.,

Dear Sir,—While the farmers of Essex County have been led by inducements held out to them in the way of gratuities and premiums, to compete with others in nearly all subjects relating to their interest, they have entirely overlooked the advantage that would accrue to them in breeding fine wooled sheep. There is no country in the world better adapted to this branch of husbandry than New England, as recently proved at the exhibition of sheep in Hamburg, none where the herbage is so suitable to them for food, nor is there any climate so favorable to their health. Why can not we, then, with the advantages of having excellent soil, producing the best kind of grasses, and so favorable a region, produce a wool of such a degree of fineness and cheapness as to make it a profitable business. We feel encouraged to know the attention of the Society has been given to the Merino Sheep as well as to other kinds of stock, and hope this branch of farming will be more generally adopted. It is a system that will not swallow up the whole profits of an estate, but will enrich the owner, and develop the capacity of his lands for producing more abundantly than before; and when the attention of the farmers of this county has been called in this direction (having an eligible location for, and a proper knowledge of the Merino Sheep,) they will find that wool culture is a profitable business.

Yours, &c., AUGUSTUS FOWLER.

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DIARY.

The Committee on the Diary have attended to their duty and report:—

There were 11 entries of butter, and only 2 of cheese; ten of the competitors for the premium on butter complied with the rules of the Society, in giving a statement of the process of making, and one did not. The butter was generally good, although in one or two instances the butter-milk was not all worked out, and a few samples were rather salt.

The Committee noticed several lots salted to the taste, and as people's tastes differ, that might be a reason for the difference in the butter.

The Committee award the first premium of $8.00, for butter, to Sarah S. Ridgway, of West Newbury.

The second premium of $6.00 to Dean Holt, of Andover.

The third premium of "Harris's Illustrated Work on Insects." to Mrs. Farnham Stiles of Middleton.

The samples of cheese were very good, and the Committee regret that there were not more entries. They award the first premium of $8.00 to N. W. Moody, of Newbury.

The second premium of $6.00 to Daniel Silloway, of West Newbury.

JONAS HOLT,
JAMES CHAMBERLAIN,
NATHANIEL ANNABLE,
JOHN A. PUTNAM,
} COMMITTEE.

STATEMENT OF SARAH L. RIDGWAY.

I present for premium 15 pounds of September butter, made in the following manner:—

The milk was strained into nicely scalded tin pans, and allowed to remain thirty-six hours in a ventilated cellar, then skimmed into tin pails, stirred morning and evening for two days, when it was churned, washed in cold water, and salted

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to the taste with rock salt; then set away for several hours for the salt to penetrate the whole and harden a little; then worked with the hands, and in the morning worked again and made into balls as presented.

STATEMENT OF DEAN HOLT.

I present for your inspection 16 pounds of September butter, made in the following manner:—

The milk is strained into well scalded pans, and placed in a cool cellar, to stand from 36 to 48 hours; it is then skimmed into cream cans, and stirred morning and evening. I churn twice a week. When the butter is taken from the churn, it is well washed with cold water; one ounce of rock salt to the ponnd is then added. After standing from 6 to 8 hours, it is worked over and left until the next morning, when it is again worked over into lumps, and put up for the market.

STATEMENT OF MRS. FARNHAM STILES.

I present for your inspection 15 pounds of September butter, made as follows:—

The milk is strained into well scalded tin pans, remaining from 24 to 36 hours—according to the weather—then skimmed. The cream is kept in stone jars, and stirred morning and evening. Before churning, the cream is brought to a temperature of 62 degrees; time taken in churning, from 5 to 10 minutes. The butter is then taken out, washed with pure soft water, and salted to the taste; after standing 24 hours in a

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cool cellar, it is again thoroughly worked, and made into lumps, as presented.

STATEMENT OF N. W. MOODY

I offer for your inspection three cheeses, made about the 1st of August, in the following manner :—

The milk is set at night in tin pans; in the morning the cream is stirred in and warmed, and the morning's milk added, with half a tea cup full of rennett. In half an hour the curd is formed, when it is broken and left to drain. When sufficiently drained, it is sliced and put in the cellar; the next day the same process is repeated. The two curds are then put together, with warm water enough to cover them; after remaining fifteen or twenty minutes, they are drained, chopped fine, and salted—half an ounce salt to a pound of cheese, with with a tea-spoonful of salt-petre, well stirred in press thirty-six hours.

STATEMENT OF DANIEL SILLOWAY.

The cheese that I present for your inspection and premium, was made in the following manner, viz :—

I have eight cows. The milk was set as soon as it was drawn from the cows at night, with a suitable quantity of rennet to make the curd, and the same process repeated in the morn- the curds ground in a curd mill, and the night and morning curds put together with a suitable quantity of salt. Pressed gently three hours, and then turned and pressed twelve hours or more. These are three out of sixty made in sixty days.

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BREAD AND HONEY.

The Committee on Bread and Honey respectfully report:—

That there were eleven entries of bread and one of Honey. The Committee were gratified with the spirit manifested by the ladies, in offering for our inspection so many specimens of their skill in the important department of bread; they were particularly pleased with the beautiful loaf, and other specimens offered by Jane Graves, of Andover; they commended themselves to the eye and taste of all, and, we believe, would be hard to beat. We should have been glad to have known the *modus operandi* of its manufacture; but no statement appeared. And we would here suggest, that hereafter all entries of bread shall be accompanied by a statement describing the process of mixing, kneeding and baking; the Society require a statement in regard to butter, cheese, etc, and why not in regard to the more important article of bread? We can see no benefit to be derived from an exhibition of bread, unless those who are so unfortunate as to be lacking in skill, "can go and do likewise." They can look at the beautiful loaves on exhibition, and, with a sigh, express the wish to know how to make such bread; but the information is not to be had. If the statement is given, under a rule of the Society, all the bread-makers in the county may know how to make good bread.

We award to Jane Graves, of Andover, for the best specimen, $1.50

To Jennie Charters, of Andover,	1.00
" Alice L. Tuck, of Beverly, (eleven years of age,)	75
" Mrs. Willard Jones, of Andover,	50
" Mary Donahoe, of Andover	50
" R. A. Berry, of Middleton,	50
" H. J. Hunt, of Andover,	50
" Miss H. Stowe, of Andover,	25
" Hannah A. Holt of Andover,	25

HONEY.

To E. C. Upton, of Andover, for two boxes honey, 2.00

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We should have been pleased to have seen as many entries of honey as there were of bread. We think were a proper interest awakened on this subject, our country might exhibit a large amount of honey; we might keep bees enough to visit every flower in the county, so that nothing which contains honey should be allowed "to waste its sweetness on the desert air." There are probably not so many bee-keepers in this county as there were twenty-five years ago; and we may here enquire what has produced this falling off. The principal reason given by those who have abandoned the business is, the depredation of the moth; and this is true not only of this vicinity, but of all the Northern States. Those who have kept bees say to us, "Yes, we used to keep bees, but the moth destroyed one swarm after another till they were all gone; and as we knew no remedy, we thought it was useless to try again." And besides, our bees did not swarm as they did some years ago, and this, so far as our experience goes, and from all we can learn from others, is true. We know some who have kept bees ten or twelve years, and have had no swarms. Whether this is the result of taking honey from the hive in boxes we cannot say; but we can say that during 15 years' trial we have never had a natural swarm from a hive from which we took honey in boxes. We have sometimes inverted the boxes in the Spring, with a determination to get a swarm instead of honey; but the result is the same; the bees, after filling the body of the hive, have clustered on the outside, and neglected to swarm. And here we would remark that although most writers on bees say that clustering or hanging out is a symptom of swarming, our experience is that it is directly the opposite; for if a hive contains bees enough to throw out a swarm, if they get the habit of hanging out, it indicates that for some reason, unknown to us, they choose to live out of doors in warm weather, and thus reduce the temperature of the hive so as to enable them to stick to the old home. But this non-swarming propensity now presents no objection to bee-keeping, or its increase, as we shall hereafter show. Another objection is, something, we

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know not what, is the matter with the hive: our bees neither swarm or make honey, and here is a case in point: We had during the past season two hives exactly alike in size, shape, and color, standing side by side, we judged one to be a little stronger than the other; during the month of June, any pleasant day, bees enough for a swarm were hanging from the front of the strongest hive, and in that hive no honey was put in the boxes; in the other, the bees, "from rise of morn till set of sun," with their merry buzz were filling the boxes with honey.

We are satisfied from experiments that, in this case, all they needed was to stir them up by artificial swarming. One gentleman who is troubled in this way, says he is determined to go back to the "old box hive," and apply sulphur to a part of his bees every year, as his father did. But this is like burning the barn to get rid of the rats. Intelligent bee-keepers have argued for many years, that bee-keeping could not be brought to perfection till a hive was invented which would enable the bee-keeper to have control over the bees and combs, and take them from and return them to the hive at his pleasure. Huber (who has thrown more light on the physiology and habits of the bee than all other writers) saw the necessity for such a hive, and he made some advance towards it by constructing a hive with frames fastened together at the back, so as to open and shut like the leaves of a book. But this hive never come into general use, because it was too complicated for the majority of bee-keepers; and thus for the want of a control over the interior of the hive bee-keeping has been abandoned by many persons for various reasons, but by far the larger number on account of the

MOTH.

The moth has been the enemy of the bee for more than one thousand years. Aristotle, Virgil, Columella, and other ancient writers, mention its depredations. It is about sixty years since it first attacked the bee on this continent; it showed itself in the eastern part of Massachusetts in the year 1800, in 1805 it was in Connecticut.

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In 1812 it first appeared in Pennsylvania, in 1830 it reached Cincinnati; some 12 or 15 years later it arrived on the Mississippi. And thus, like civilization, cholera, and the potatoe disease, it has taken its way westward. How it was brought to this country no one knows, but for a time wherever it appeared it nearly destroyed the bees. At first it was more fatal than it has been since, as the bees were taken completely by surprise, and were totally unprepared to resist; but as with men so with bees, "new occasions teach new duties;" after recovering from the first panic, the bees set about fortifying their positions, and have ever since taken such precautions as, with the assistance of their owners, have enabled them in some measure to overcome the evil. If a swarm was reasonably strong, they might prosper; but woe to those who had lost their Queen, or from some other cause become reduced in numbers, the moth entered the hive, commenced its work, and the bees after a few days of contest, gave up in despair. Instead of flying from the hive with a merry song in pursuit of honey, they crawl sluggishly around the entrance as though some great calamity had overtaken them. Day after day they appear less in numbers, and soon they all disappear. Upon opening the hive, instead of finding the beauty, order and regularity described by Shakespeare, King Henry 5th, act 1, scene II:

"For so work the honey bees;
Creatures that, by a rule in nature, teach
The act of order to a peopled kingdom.
They have a king, and officers of sorts:
Where some, like magistrates connect at home;
Others, like merchants, venture trade abroad;
Others, like soldiers, armed in their stings,
Make boot upon the summer's velvet buds;
Which pillage they, with merry march, bring home
To the tent royal of their emperor:
Who, busied in his majesty, surveys
The singing masons building roofs of gold;
The civil citizens kneading up the honey;
The poor mechanic porters crowding in
Their heavy burdens at his narrow gate;

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The sad-eyed justice, with his surly hum,
Delivering o'er to executors pale
The lazy, yawning drone."

We find ruin, desolation, worms and filth. Huber and Bevan both remark that the moth is more likely to attack old swarms than new; but we have had more damage done to new swarms than old ones by this pest. A few years since we put a good swarm in a hive, and examined them every day (as should always be the case.) In about ten days, discovering indications of the moth, we immediately opened the hive at the bottom, and destroyed a number of worms; by doing this every morning for a week we succeeded in getting rid of them, and the hive has ever since been prosperous, and we believe they could be exterminated in this way. But by using the hive which we shall describe hereafter, the bee-keeper need have no fears of the moth. As we remarked previously, the neglect to swarm offers no objection to bee-keeping, for we can now multiply our swarms indefinately, whether the bees are inclined to swarm or not, and although it is a pleasant sight to the bee-keeper to stand by a hive and see the bees crowding out to swarm, and filling the air with their merry gambols,

"See where with hurried step the impassioned throng
Pace o'er the hive, and seem with plaintive song
To invite their loitering Queen; now range the floor,
And hang in clustered columns from the door;
Or now in restless rings around they fly,—
No spoil they sip, nor load the hollowed thigh.
E'en the dull drone his wonted ease gives o'er,
Flaps the unwieldy wing, and longs to soar;
Up mounts the chief, and to the cheated eye
Ten thousand shuttles dart along the sky;
As swift through ether rise the rushing swarms,
Gay dancing to the beam their sunbright forms;
And each thin form still lingering on the sight
Trails, as it shoots, a line of silver light.
High poised on buoyant wing, the thoughtful Queen
In gaze attentive views the varied scene;
And soon her far-fetched ken discerns below

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The light laburnum lift her polished brow,
Wave her green leafy ringlets o'er the glade,
And seems to beckon to her friendly shade.
Swift as the falcon's sweep, the monarch bends
Her flight abrupt; the following host descends
Round the fine twig, like clustered grapes they close
In thickening wreaths, and covert a short repose."

Evans.

Yet we are satisfied that to permanently increase our swarms we must resort to

ARTIFICIAL SWARMING,

for if we depend on our natural swarms, unless we watch the hives during the swarming season, we shall lose a large portion of our swarms; for the time occupied by a swarm in leaving the hive and clustering, rarely occupies more than ten minutes, sometimes not half as long. Sometimes they leave the hive and fly some distance, and after they have gone or have clustered, there is nothing like an even chance of our knowing they have swarmed, even if we examine the hives; and for this reason, among others, bee-keepers for more than fifty years have experimented on artificial swarming. Till within a short time the process has been so complicated that it required more time and knowledge than the mass of the bee-keepers had at their command. But thanks to the genius and experiments of Rev. L. L. Langstroth, (who formerly resided in our county,) the process is now so short and simple that any person keeping bees can accomplish it. Perhaps a relation of our own experience in this matter will here be in place. In 1861 we had a swarm which was hived in 1855, (a second swarm;) during the six years, it had filled the body of the hive, but had furnished us with neither swarms or honey. Having studied Langstroth's method, we invited a friend early in June to come and assist us in the "kill or cure" process. He gladly complied with the invitation, as he had a hive in about the same condition, but he did not believe we could succeed in making a swarm.

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On a warm day, about 11 o'clock, when the bees were flying thick, we took the hive from the stand, carried it about twenty feet back and turned it bottom up, having previously stopped the entrance. We then placed a similar hive (empty) on the stand in its place, that the bees which were abroad might enter it; we then opened the bottom of the inverted hive, no bees flying out, as they were completely stupefied with fear; we placed a box the size of the hive on it, and tied a cloth around the joint to prevent any bees from getting out. We then drummed with sticks on the sides of the hive; after a few minutes' drumming, the bees commenced going up, and when we thought we had enough for a swarm—having a glass in the box covered with a slide—we removed the box, the bees clustering in the top like a natural swarm; we then having a sheet spread upon the ground, struck the box down upon the sheet, emptying the box entirely, and then sprinkled the bees with water from a watering pot to prevent their flying. Then placing a hive for them as for a natural swarm, we moved the old hive back to its place on the stand, so that any stray bees might enter it. Shaking the bees from the decoy hive, which we had placed temporarily on the stand, all the returning bees entered the old hive, none leaving. When the driven swarm had entered the new hive, which they did very kindly—it contained no comb or anything to entice them—we moved the old hive about thirty feet, and placed the new swarm where the old one had stood, and the process was complete, having occupied about forty minutes. So well satisfied was our incredulous friend, that he concluded to operate on his hive the next day if we would assist him. Now for the result. The new swarm went to work immediately, and in twelve days filled the hive, holding one bushel, and the same season gave us twenty lbs. of nice honey. The next season they threw off a very large swarm the 25th day of May, and two afterwards that season.

The old swarm, after recovering from their depression occasioned by the loss of their queen, raised a new queen, became

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as populous as before, and made thirty pounds of honey for our use that season. I dreaded the operation previous to doing it, as I had never seen anything of the kind, but it was very easy and a complete success. I have since done it alone several times, and it has always worked well; but I would advise every one who undertakes it for the first time to have assistance. This is certainly an easy method of making swarms; but easy as it is there is a way to do it much easier, and that is by using the

MOVABLE COMB HIVE,

invented and patented by Rev. L. L. Langstroth. In this hive all the comb is built in moveable frames, which are suspended from the upper part of the hive, and can be taken out and replaced with the utmost facility. Every one acquainted with bees knows that, if left to themselves, they build their combs in a very irregular manner; but in this hive, the combs are built with perfect regularity; we can have them made of any thickness, but it is best to have them all of one thickness, so that we may change them from one hive to another, thus—If we find in the month of November that one swarm has not honey enough to carry them through the winter, we can take two or three frames from a hive that has a surplus and put them in the weak hive in place of their empty frames; if we wish to make a swarm at the proper season, we take a few frames containing broad comb with the bees adhering, and put them in a new hive, and if we wish for more bees, shake a few from other frames, and we have a new swarm, as bees will never leave brood comb; they immediately raise a queen and go on with their work. To mention all the advantages of this hive would require considerable space; we think any bee-keeper examining it will be convinced that it is *the* hive. Langstroth, in his very valuable book, the "Hive and Honey Bee," gives sixty-one reasons why he considers his hive an improvement on the old fashioned hive, among them is his facility for getting rid of the moth. All we have to do when

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we find indications of this pest is to open the hive, take out the frames till we find the interloper; cut out all the comb infected, return the comb to the hive, and the work is done. But we need not enlarge our remarks on this hive; any intelligent person can see at once the advantages of a perfect control of the combs. There are other hives with movable frames, but they are all modifications of Langstroth; to him we believe belongs the invention of the movable comb hive, although about the same time a Prussian Clergyman of the name of Dzierzon invented a movable comb hive, yet not as simple as Langstroth's, neither had any knowledge of the other. To show the estimation in which Dzierzon's system is held in Germany, we give an extract from the Leipzig Illustrated Almanac. Report on Agriculture, 1846:

"Bee culture is no longer regarded as of any importance in rural economy."

From the same, 1853:

"Since Dzierzon's system has been made known, an entire revolution in bee culture has been produced; a new era has been created for it, and bee keepers are turning their attention to it with renewed zeal."

Many persons will be surprised to hear us talk of controlling and handling bees, but to us they possess no terror; by Langstroth's method they seem to lose all desire to sting. It is simply this. When you wish to perform any operation on bees, open your hive, (his hive opens at the top,) and sprinkle them with water made very sweet, with sugar, or honey; as the bee can never resist the inclination to take anything sweet, any more than the drinker can his dram, they forget their anger and fill themselves with sweets, and this puts them in so comfortable a frame of mind, that they allow themsemselves to be handled without resenting it, if you do not hurt them. Bee keepers have always known that bees were not inclined to sting when swarming, but no one knew why! Langstroth discovered that it is because the bees have taken in a supply of honey to commence work in the new home. Every one knows

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that a quarrelsome man is better natured after dinner, than before, so with the bees, when gorged with honey, they have an amiable disposition. But a new kind of bee has lately been introduced, said to be much more docile, under any circumstances than the common bee, and this is the

ITALIAN BEE.

Aristotle and Virgil both speak of this bee, but it has been comparatively unknown till within a few years, (after a lapse of two thousand years). It is receiving considerable attention both in this country and in Europe. It is claimed that the Italian queen retains her fertility much longer than the common queen, and is more prolific, that the Italians are more industrious than the common bee, produce more swarms and more honey, commence earlier in the spring, and work later in the season than the common bee; they are undoubtedly an improvement, but the price at which they are sold has deterred many from obtaining them. The price for an Italian Queen has been ten dollars. As the Irishman said, "too much money for so little meat," but probably before many years the price will be so reduced as to bring them within the reach of all bee keepers. There are many more points in bee keeping upon which we might touch, but we have already occupied more space than we intended.

In conclusion we would advise every bee keeper to purchase a copy of Langstroth's Book (third edition), whether they use his hive or not; we are satisfied it will be money well invested. Huber, Bevan and other Europeans have written good books, but they are not exactly fitted to this continent. Many books on the bee have been published in this country, some of them good, many of them worthless; one copies Bevan's Preface entirely without giving credit; the sole object of some seem to be, to abuse and villify Huber long after he occupies his grave. Langstroth goes forward in his work turning neither to the right or left, and our opinion is that any person studying his book, and managing their bees by its teachings must suc-

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CEED; and as we think, all the objections which have existed against keeping bees, can be overcome by the improved methods of management, and the prices of all saccharine matter will probably rule high for many years to come, we hope to see an interest awakened on this subject, which will result in stocking our county with merry buzzing swarms, to such an extent that we shall furnish our own honey, and that too in goodly quantity. Considerable honey is now brought from New Hampshire and sold in this vicinity, large quantities of West India honey are also used here, yet it would not materially interfere with the other duties of the citizens of our county to keep bees enough on our own territory, so that every year we might have a large margin for exporting. Although nature has not given the cane, or any other plant producing sugar in large quantities, yet

> "God gives man reason, he is taught
> To make the strength of beasts his own,
> Their several qualities are brought
> Into his service."

And we can take advantage of this in the management of bees, and then, too, it is really a pleasure, to an enquiring mind, to study the habits of this little wonder, so busy (if the conditions are right) during its short season for labor—for the length of the life of the worker bee is about six months, never reaching one year. The life of the male or drone is about four months, while the queen, "sole monarch of the hive," reaches the age of four, and in extreme cases five or six years. We can at any time find amusement and recreation going among our hives on a warm day, when the bees are busy, listening to their merry songs, and watching their gyral gambols, for although provided with a sting they never use it except in self defence, and we are satisfied if their habits were better understood, future committees on bread and honey would have not only a more pleasant but a more onerous duty to perform.

Respectfully submitted,

EDMUND SMITH, Chairman.

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VEGETABLES.

The Committee on Vegetables report :

There were about thirty contributors to the Vegetable department, much less than some former years, and the quality as a whole was not quite as good, although there were some very fine specimens. The deficiency may, however, be owing in part to the crop generally not being so abundant as some previous years. But we have reason to believe that it is also owing in part to neglect on the part of contributors, or on the part of those who ought to contribute.

The Committee would recommend the following premiums and gratuities :—

To A. Curtis of South Danvers, for the largest and choicest collection of vegetables, the first premium of $8

To E. F. Holt, Andover, the second premium, "Harris' Insects."

GRATUITIES.

To Luke Cunningham of Andover, for sixteen varieties of potatoes and other vegetables,	$3
Benjamin Boynton of Andover, squashes, &c.,	50 cts.
J. S. Ives of Salem, Canada squash and sweet potatoes,	50 cts.
J. S. How of Methuen, specimen of cauliflowers,	$1
E. G. Hyde, Danvers, for onions, flax, &c.,	$1
Hermon Abbott, Andover, specimen of squashes,	50 cts.
Walter Donald, Andover, turnips,	50 cts.
M. C. Andrews, Lawrence, new varieties of potatoes,	75 cts.
D. W. Blakely, North Andover, Curley Kale,	50 cts.
P. P. Pillsbury, Andover, specimen of corn,	50 cts.
John I. Bailey, " " "	50 cts.
Ebenezer Jones, " " "	75 cts.
Miss. Charlotte Frye, N. Andover, specimen of corn,	50 cts.
Nathaniel B. Abbott, Andover, " "	50 cts.
Henry A. Bodwell, Andover, specimen cucumbers,	50 cts.

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Jonathan King, South Danvers, coffee bean plant, 50 cts.
G. S. Phippin, Methuen, specimen of mammoth squash, 50 cts.
H. Chandler, Andover, specimen of squashes, 50 cts.
George Smith, Andover, mammoth pumpkin, 50 cts.
H. Jones, Andover, squash and pumpkin, 50 cts.
Reuben Jones, Andover, specimen of squashes, 50 cts.
Luke Bean, Andover, " " 50 cts.
Ezra Robinson, Lawrence, " " 50 cts.
W. W. Tracy, Andover, corn stalk, 50 cts.
Mrs. Sarah Holt, " Virginia pepper plant, 50 cts.
Mrs. H. Bailey, " specimen of peppers, 50 cts.
George L. Davis, N. Andover, variety of fine squashes and other articles, $3

All of which is respectfully submitted,

JOSEPH HOW,
NATHAN PAGE, Jr.,
D. I. C. HIDDEN,
} Committee.

PEARS.

The Committee on Pears would respectfully report:

There were thirty entries of Pears shown. The premiums were awarded to the following persons for dishes of twelve specimens, $1 each.

Belle Lucrative, Peter Wait, Danvers.
Bartlett, Eleazer Lake, Topsfield.
Flemish Beauty, Peter Wait, Danvers.
Beurre Bosc, G. L. Hodgkins, Salem.
Seckel, John S. Ives, Salem.

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Buffum, Eleazer Lake, Topsfield
Winter Nelis, G. L. Hodgkins, Salem.
Lewis, Charles F. Ives, Salem.
Louis Bon de Jersey, Mrs. H. P. Chandler, Andover.
Beurre Clairgeau, J. B. Sargent, West Amesbury.
Golden Beurre, Peter Wait, Danvers.
Marie Louise, J. B. Sargent, West Amesbury.
Bezi de la Motte, G. L. Hodgkins, Salem.
Fulton, E. Lake, Topsfield.
St. Guislaine, Moses Foster, Andover.
Doyenne Boussock, Francis Baker, South Danvers.

GRATUITIES, FIFTY CENTS EACH.

Paradise of Autumn, Wm. Chickering, Andover.
Fulton, Peter Wait, Danvers.
Lewis, Jonathan Shillaber, South Danvers.
Flemish Beauty, G. L. Davis, Andover.
Flemish Beauty, Sylvester Abbott, Andover.
Beurre Diel, E. Lake, Topsfield.
Urbaniste, G. L. Hodgkins, Salem.
Gov. Endicott, (from a tree 238 years old,) W. A. Gaffney, Danvers
Seedling Pears, three varieties, J. J. H. Gregory, Marblehead, $1.

NATIVE WINES.

Madeira, made from Rhubarb,	Carter & Sons., Georgetown,	$2
Blackberry,	" "	$1
Two kinds from	J. B. Howard, Lawrence,	$1
" "	Isaac Goldsmith, Andover,	$1

For the Committee,

JOHN M. IVES.

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APPLES.

The Committee on Apples have examined and compared fruits, and award the following premiums of $1 each for the best plates, of twelve each, of the kinds named :—

H. &. J. M. Perry, Danvers, Porter.
Benjamin P. Ware, Marblehead, Pickman Pippin.
E. Lake, Topsfield, Yellow Belle Fleur.
J. Sidney Howe, Methuen, Baldwins.
Geo. L. Hodgkins, Salem, Ribston Pippin.
J. B. Barker, Methuen, Hubbardston Nonsuch.
Peter Wait, Danvers, Hunt's Russett.
T. C. Thurlow, West Newbury, Danvers Sweet.
D. T. Morrison, Methuen, Seaver Sweet.
J. B. Barker, Methuen, Gravenstein,
E. Lake, Topsfield, Minister.
Peter Wait, Danvers, Ramsdell Sweet.
S. P. Fowler, Danvers, Fameuse.
Hiram Goodhue, No. Andover, Red Russett.
J. H. Rea, Andover, Roxbury Russett.
H. &. J. M. Perry, Danvers, R. Island Greening.
N. Annable, South Danvers, Fall Harvey.
E. Lake, Topsfield, Lyscom.
" " Fall Pippin.
H. & J. M. Perry, Danvers, Winter Sweet.
T. C. Thurlow, West Newbury, Moody.
" " " Ladies' Sweet.
Josiah Newhall, Lynnfield, Ben or Eustis.
Hiram Goodhue, North Andover, Northern Spy.
Largest number of varieties, Eleazer Lake, Topsfield, one copy of "Harris' Insects."
J. B. Barker, Methuen, second premium, $2.

GRATUITIES.

Seth Shearman, Andover, variety, $1
Levi Bean, Andover, two varieties, $1

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Enoch Frye, No. Andover, Baldwins,	50 cts.
M. G. Pratt, Andover, King of Tompkins Co.,	$1
E. F. Holt, Andover, Hubbardston,	50 cts.
H. Jones, Andover, Porter,	50 cts.
J. S. Ives, Salem, Lyscom,	50 cts.
S. P. Fowler, Danvers, Hurlbert,	50 cts.
Joseph P. Blake, No. Andover, five varieties,	50 cts.

WM. CHICKERING,
JAMES FLINT,
GEO. W. GAGE,
} COMMITTEE.

GRAPES, PEACHES AND ASSORTED FRUIT.

The Committee on Grapes, Peaches and Assorted Fruit report seventeen entries of Grapes, one of Peaches, one of Plums and four of Cranberries. The premiums were awarded to the following persons:—

For the best County Seedling, Rogers' Hybrid, No. 15, to G. W. Gage of Methuen,	$2
Cold House Grapes to John M. Ives, Salem,	$2
Assorted Fruit, Peter Wait of Danvers, "Flint's Work on Grasses."	
Best Concord Grape, Wm. H. Kimball, Andover,	$1
Best Hartford Prolific, Wm. Chickering, Andover,	$1
Best Isabella, G. W. Gage, Methuen,	$1
Best Diana, W. H. Kimball, Andover,	$1
Best Delaware, " "	$1
Rogers' Seedling, No. 19, G. W. Gage, Methuen,	$1
Blood Peach, J. M. Ives, Salem,	$1

GRATUITIES.

E. S. Rogers, Salem, show of his No. 3, 4, & 15,	$1

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Samuel Gray, Andover, Plums,	50 cts.
John Smith, Andover, Grapes, (Hot House,)	50 cts.
J. B. Sargent, West Amesbury, Seedling Grape,	$1
Moses Foster, Andover, four varieties of Grapes,	50 cts.
James Bailey, Andover, Concord Grapes,	50 cts.
G. W. Gage, Andover, Seedling Isabella,	50 cts.
J. J. H. Gregory, Marblehead, Clinton Grape,	50 cts.

CRANBERRIES.

John L. Colcord, South Danvers,	50 cts.
H. Jones, " "	50 cts.

J. NEWHALL,
WM. D. LAMB,
ANDREW NICHOLS, } Committee.

FARM IMPLEMENTS.

The Committee on Farm Implements have examined the several implements entered, and respectfully report that in their opinion the following gratuities should be awarded:—

S. A. Merrill of Salem, for Buckeye Mowing Machine,	$5
D. S. Caldwell, Newbury, Farmer's Mowing Machine,	$5
David Gray, Andover, a new Hand Cider Mill,	$2
Amos Poor, West Newbury, a Horse Pitch Fork,	$1
J. S. Morse, Georgetown, a Corn Sheller,	$1
Henry Waterman, Haverhill, a patent Water Drawer,	$2

To Whittemore, Belcher & Co., of Boston, they award $2 for a Vegetable Cutter, $1 for a Lever Cutter, and $1 for a Corn Sheller.

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There was on exhibition a very useful article called the Yankee Clothes Dryer, and a very valuable Coal Sifter, but as the Committee considered that these articles hardly come under the description of Farm Implements, they have not felt at liberty to award any gratuities for them.

The above were nearly all the Farm Implements entered, and the Committee take this opportunity to express their regret, shared in by most of the members of the Society and spectators, that so few of such articles were presented, and they hope to see at future exhibitions, a large increase in this department.

SIDNEY C. BANCROFT,
I. H. PUTNAM,
E. E. LUMMUS,
BENJ. F. JENKINS,
E. K. LEE,
HIRAM P. GOODHUE,
} COMMITTEE.

ARTICLES MANUFACTURED FROM LEATHER.

The Committee on Articles Manufactured from Leather report four entries only of Boots and Shoes, and award the first premium of $4 to Stickney & Co., of Groveland, for the best pair of thick boots.

For the best pair of Ladies Calf Walking Shoes, $2 to H. & C. Stickney of Groveland.

There were but two entries of Harnesses. The Committee award to George French of North Andover $5, for the best carriage harness, also $3 for the best waggon harness.

LEWIS ALLEN,
For the Committee.

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COUNTERPANES, CARPETINGS AND RUGS.

The Committee on Counterpanes, Carpets and Rugs, present the following report:—

There were twelve entries of Counterpanes, and twelve also of Rugs. No floor or stair Carpets were offered.

For the best Counterpanes, the Committee award to Mrs. A. Bennett of Lawrence, the first premium of $4.

To Mrs. Charles Stickney, Lawrence, the second premium of $2.

To Mrs. H. H. Edgell, of Andover, Mrs. John C. Dow of Lawrence, Miss. Eliza Mooar of Andover, Miss. Susie Morse of West Boxford, Mrs. S. E. Symonds of North Andover, Mrs. R. M. Abbott of Andover, Mrs. Mary Fuller of South Danvers, Mrs. J. Frye of Andover, and Mrs. E. P. Higgins of Andover, each a gratuity of $1.

For the best Rug the Committee award to Mrs. A. J. Church of Lawrence, the first premium of $3.

To Mrs. Nathan Bushby of South Danvers, the second premium of $2.

To Mrs. Phebe Atkinson of Andover, two Rugs, $1.50.

To Miss. Eliza Robinson of Lawrence, Miss. A. D. Carr of West Newbury, Mary Tenney of Bradford, Miss. Mary A. Ross of Danversport, Mrs. George B. Abbott of Andover, a gratuity of $1 each.

To Mrs. David Baker of Andover, two Rugs, $1.25.

A. J. GOULD,
GEO FRENCH,
DANIEL RICHARDS,
A. E. GOODWIN,
N. B. ABBOTT,
} COMMITTEE.

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FANCY ARTICLES.

The Committee on Fancy Articles report that the whole number of entries was sixty-eight. This is a very small show of such articles, as compared with former years. The Committee missed the usual display of Bonnets, Shell and Horn Combs, and articles made by children under twelve years of age. There were no Bonnets or Combs exhibited, and the Committee were ennabled to offer but one premium under the rules of the Society. The following is the list of awards:—

A. C. Merrill of Newburyport, a child under 12 years of age, for Bead Work, Crotchet Work, etc., prem. $3
Harriet B. Low, Andover, Burr Frames, gratuity, $1
Mary E. Low, Andover, Burr Frame, " 50 cts.
B. E. Herrick, Lawrence, Plain Sewing " $1
Mary Johnson, Andover, Picture in Crayon, 75 cts.
Susan C. Cutts, Salem, Worsted Tidy, 50 cts.
M. E. Johnson, Andover, Hair Wreath, $1
James Batty, (by G. W. W. Dove,) Andover, Fancy Shirt, $3
C. C. Stevens, Boxford, Worsted Work, 50 cts.
E. P. G. Marsh, Methuen, Childs Blanket and Skirt, $1.50
J. W. Mann, Methuen, Fancy Carved Work, etc., $2
M. A. Farnham, North Andover, Fancy Work, two Collars, 75 cts.
Sarah Bean, Andover, Cone Baskets, 50 cts.
Sarah F. Jenkins, Andover, Crochet Work, $1
Picture, by Mary Johnson, Andover, 50 cts.
Annie Gonld, Boxford, Cone Frame Work, $1
Anna Putnam, Danvers, Wall Pockets, 50 cts.
E. P. Ingersoll, Andover, Fancy Slippers and Tidy, 50 cts.
Josephine N. Frye, Andover, Colored Crayons and Crotchet Work, $1.50
N. J. Merrill, Andover, Book Marks andTidy, 50 cts.
Sarah E. Higgins, Andover, Crotchet Work, 50 cts.
Mrs. A. J. Church, Lawrence, Cross and Coloring Photographs, 50 cts.

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Miss. Newman, Andover, Cap and Tidies,	75 cts.
D. S. Gillis, Andover, Fancy Skirts and pair Chemises,	$1.50
Harriet Warren, Cone Baskets,	50 cts
George H. Peirson, Saugus, Cone Frame, very fine,	$1
Scott Kimball, Andover, Hair Wreath,	$1.50
Lydia C. Abbott, Andover, Cone Basket,	75 cts
Mary Gray, Salem, Tidy and Collar,	75 cts
Mrs. H. R. Abbott, Andover, Fancy Hair Work,	$1
Sarah Ingalls, Andover, Tidy,	$1
A. G. Cole, Andover, Chemise Yoke and Sleeve,	50 cts
Roxanna Bailey, Andover, Hair Wreath,	$2
Elmira Jones, Andover, Crayon Picture,	50 cts.
N. A. Messer, Methuen, Chair Coverings,	50 cts.
Louisa Boynton, Andover, Indian Doll,	50 cts.
Clara Boynton, Andover, Bead Work,	$1
Alice L. Tuck, Beverly, Woolen Tidy,	$1

Respectfully submitted by

F. POOLE,
JAMES KIMBALL,
HENRY HOBBS,
DAVID STILES,
N. AMBROSE,
} COMMITTEE.

FLOWERS.

Best pair of Parlor Boquets, Geo. L. Davis, Andover,	$2
" hand Boquets, Edward Flynn, Lawrence,	$2
" Floral design, Geo. L. Davis, North Andover,	$3
" stand Cut Flowers, Edward Flynn, Lawrence,	$2
" dish of Native Flowers, Mrs. H. A. Spofford, Groveland,	$1

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Best twelve Dahlias, Geo. L. Davis, North Andover, $1
" and largest display from one individual, Edward Flynn, Lawrence, $2
Three of the Committee award to B. R. Downs of Bradford, as a gratuity for his Century Plant, (35 years old,) $3
Floral display, Mrs. Doct. Tracy, Andover, a gratuity, $1
Dish of Quilled Asters, W. H. Perrin, West Andover, a gratuity, $1
Basket of Flowers, Mrs. H. P. Chandler, a gratuity, 50 cts.

B. R. DOWNS,
JOHN PRESTON,
WM. L. WESTON, } COMMITTEE.

ROOT CROPS.

The Committee on Root Crops would report:

The attention bestowed upon the cultivation of root crops and vegetables in the county during the last season, has been somewhat modified by the difficulty experienced in obtaining that kind of labor which is adapted to them. Our farmers have long since abandoned all doubts with regard to their profit, and the benefit which they confer upon the animals fed upon them. During the last few years they have been very generally introduced into every section of the county; not perhaps so largely as we could have wished, but extensively enough to indicate an increasing appreciation of their value. The onion crop of Essex County has become one of the well known proofs, of the profit of judicious and skillful cultivation. The carrot crop has become in some regions one of the staple products of the farm and a very considerable article of merchan-

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dise among us. Our dairy men heve learned the value of the Mangel Wurzel. And all who find it necessary to winter store cattle on rather inferior fodder, have become satisfied that the turnip crop can do more than anything else to increase the nutritive qualities of hard fare.

We doubt whether any man among us who has learned these facts by experience could be made to believe that twenty-five tons of carrots on an acre of land, or twenty tons of Ruta Bagas are not a profitable crop, because as is said, nearly ninety parts in one hundred are water, in a free and unnutritious condition. It is evident that however great may be the dilution, there are floating in this liquid, and diffused throughout it, and combined with it, certain chemical agents which, presented in this form, are peculiarly adapted to the production of animal fibre. The argument so frequently used, that root crops, particularly turnips, contain a large percentage of water, and must therefore be deficient in nutritive power, will apply to almost every article of food known to man and animals. Every product of the soil contains a certain quantity of matter, either woody fibre or water, which of itself is not nutritious; but which under proper combinations is highly useful and important. It should be remembered that by actual experiments in feeding, 300 pounds of Swedish turnips are proved to be equivalent to 100 pounds of English hay; and that under this rule, an acre of land which produces two tons of hay, will, by furnishing eighteen tons of turnips, increase its production of food three-fold. These crops are a fair average for the estimate. It is found moreover that 1728 grains in weight of Swedish turnip afford 110 grains of nutritive matter; and that 3000 grains of white clover contain only 100 grains of nutritive matter. According to this estimate turnips are nearly twice as nutritious as undried white clover; and it would require a crop of thirty-six tons of green clover to the acre, to afford the nourishment furnished by eighteen tons of turnips. Clover contains by actual test five-sixths of its weight in water; and we need, therefore, only twelve tons of the green clover

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to furnish us with the two tons of dry hay which we have introduced into our calculation.

We present these comparative estimates to show that, weight by weight, the turnip crop is superior to the grass crop in point of nourishment, taking each crop in a green state; and that the loss in water is much less in the former than in the latter.

But beyond all this there is the practical fact known to every farmer, that the health of his animals, and their capacity to digest other kinds of food, is greatly benefited by the use of roots. Aside from the actual nourishment which the roots contain, they possess the faculty of so combining with the acids of the stomach and with the chemical constituents of hay, grain, straw, etc., as to aid very materially the business of feeding. The amount of English hay and Indian corn requisite to produce a given amount of animal growth and fat, may be materially reduced, and economically reduced too, by a judicious use of turnips. It is very evident that a vast amount of hay and corn meal is unassimilated, where these articles are fed lavishly, as they usually are, to our stall-fed cattle. It is the use of roots, especially turnips, which may prevent this, and render the business of feeding, now so unprofitable here, perhaps somewhat remunerative. These remarks may not be applicable to those sections of the country, which are so far removed from the market, as to render their grass and grain crops of comparatively small value. But among ourselves, where the markets are at our very doors, and where these crops command a high price, it is evident that the most skillful economy in their use is one of the fundamental rules of good farming.

We have referred particularly to the Sweedish turnip, because we consider it better adapted than any other root to the general business of farming. The carrot and the Mangel Wurzel, each of which is, in its way, very valuable to the farmer, require most careful cultivation, and soil of a very superior quality. They need heavy manuring, with fertilizers properly prepared and skillfully applied. They must be seeded early

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in the season; and if by any accident of drought or insect or blight the early plant is destroyed, the seasons here are not long enough to give a good crop from late sowing. Not that we would undervalue either of these roots. For dairy purposes the Mangel is invaluable; and careful experiments have shown that feeding it is often attended with results superior to those following the use of Swedes, especially in fattening full-grown cattle. Still the seed germinates with difficulty, the young plants are tender, and less weight is obtained per acre than from Swedes. So too of the carrot, when cultivated properly, and selected well, there is no more useful crop, and perhaps none more profitable. It is needless to enlarge upon this root in Essex County, where our farmers have surpassed all others in the size of their carrot crop, and where feeders have already learned its value for horses, cattle and sheep.

But it seems to us that the true value of the Ruta Baga or Swedish turnip, is not yet fully known among us. It is to a very considerable degree a substitute for the potatoe, which formerly gave an ample reward for a small outlay of land, labor, and capital, but which has now become one of the most uncertain of all field-crops. It furnishes excellent food for man as well as animals, can be cultivated at a very small expense, and is admirably adapted to much of the light soil of the county. It grows with great luxuriance on new land. It may be sown late in June, after other crops have had one hoeing, and just before the busy season of haying begins,—in fact Swedes for winter-store should not be sown earlier. The crop may be easily managed with the horse-cultivator; and, inasmuch as it will bear rough usage in early life with impunity, it can be thinned with great rapidity with the common hoe—facts worthy of consideration in the present scarcity and expense of labor.

The value of the turnip in English husbandry is so well known, that it need only be referred to. A desire to impress its value upon the minds of farmers here, induces us to enter

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into a somewhat extended notice of it, rather than the expectation of presenting anything new.

The cultivation of the turnip as a field-crop, although known to the ancients, and carried on with great care in Holland for many centuries, was unknown in England until its introduction into Norfolk by Lord Townshend, about the middle of the last century. Since that time it has been pursued with great industry and skill, until the best varieties are found in that country. The time may arrive when the seed of the root raised in this country will be as good as that raised in England; but it is not so now. It may be some defect in our cultivation, which causes the degeneration of the plant here; but that this degeneration does take place, there is abundant evidence. Possibly our soil is not in condition to develop the root thoroughly; the fact that Swedes exhaust our new soil, would in some degree indicate this. And yet it is said of the turnip crop—"it is indeed the sheet-anchor of *light soil* cultivation, and the basis of the alternate system of English husbandry, to which every class of the community is much indebted."

With us the crop prefers a light warm loam, which has not been too highly cultivated for other crops, and is not too heavily manured. We have found a great disposition in the best improved turnips of England, to run to necks and heavy luxuriant tops, at the expense of the root, when sown on rich heavy clayey soils, upon which root crops had been previously raised, with excessive manuring. And while great care is taken abroad in the preparation of the land for this crop, it seems as if the rule was reversed here, and the less care the better.—There can be no doubt that on light gravelly soils which have been kept open by long continued cultivation, a good supply of well rotted barn-yard manure is indispensable to turnips.—But such soil as this, upon which grass had been grown until a strong sward has been created, may be ploughed late in June, a light dressing of manure applied and harrowed in; and by using superphosphate in the rows, a good crop may be obtained. In England it is very customary to sow turnips after a

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crop of wheat. But in this country grass is the usual successor to our grain crops. And we know of no rotation of crops into which turnips can be introduced—unless it be as a first crop after ploughing the grass land late in the spring. In this way turnips can be raised without that exhaustion of the soil of which we have spoken. And land, thus treated, will produce a good corn crop the following season, besides being in excellent condition to cultivate. We should not advise the cultivation of turnips on land which is to be seeded down to grass as the next step in the rotation. Grass does not set well, and it is a long time before a luxuriant and compact sward is produced after such a process. A piece of worn out grass land, then, may be very profitably used for turnips the year it is broken up. It may then be used for other root crops if desired, or for corn which is by far the best crop known among us, to precede the laying down of lands to grass, with some small grains. In preparing land for turnips; as we have suggested, it should not be ploughed until after the middle of June, and the seed should be sown as soon after as possible—say about the 20th of that month.

There are two modes of applying manure to the land for turnips, in the choice of which we should be governed by the soil. Where the land is very light, and does not admit of deep ploughing, green barnyard manure may be spread upon the sward before ploughing, and turned under. In this case the fermentation of the manure will take place with great rapidity during the hot summer months—the sod which lies above it not being firm and close enough to exclude the air, which is indispensible to the process of decomposition. As the season advances the rootlets will find, as they penetrate the light warm sod, an abundance of nourishment beneath. On heavier lands, however, a different process seems to be necessary. These should be ploughed at the time recommended, to such a depth as to give a good supply of loose soil for the seed-bed. The manure applied to them should be well decomposed—and if composted with old muck, it will be an advantage. It is

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seldom that cow-manure alone attains a degree of warmth sufficient for this crop. It is well therefore to combine it with a liberal supply of well rotted horse-manure. A compost of one third muck, one third cow-manure, and one third horse-manure, well mixed, and thoroughly decomposed, is as good an application for turnips as can be found. About six cords of this compost, spread upon the acre, and well harrowed in, will make a good bed for the crop. The addition of half a ton of bone manure to the acre, to the compost heap before it is applied, will vastly improve the mixture.

When the land has been prepared and the manure applied, as we have suggested, it should be lightly furrowed with a common wooden marker, containing three or four teeth about four inches long, and from 20 to 24 inches distant from each other. This instrument will line off the field into shallow furrows not more than an inch in depth. In these furrows, should be strewn with the hand about found hundred pounds of good superphosphate of lime, to the acre. The seed should then be sown in the furrows, with a seed-sower, so managed that the seed shall not be deeply covered. We recommend the superphosphate for this crop, after many trials of its merits.' The chairman of this committee used, during the past season, Flour of Bone, Mexican Guano, and Rhodes' Superphosphate, upon different contiguous portions of the same field. The Superphosphate produced the desired and expected effect; the Flour of Bone fell some distance behind; and the Guano produced no perceptible effect at all—the crop being very light.

In manuring turnips it is particularly desirable to neutralize as far as possible the vegetable acids in the soil. Muck should never be applied to them until it has been corrected by the action of frost and heat, or by the use of lime. It will be found that the smoothest and best shaped turnips grow on land in which the mineral elements preponderate. Wherever these elements are deficient, as is often the case in soils where clay or muck abound, the use of lime will be be found beneficial, not only as a neutralizer of the acids, but as a solvent of the veg-

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etable matter contained in them. It is for this reason that bones, superphosphate of lime, ashes, and Mexican Guano, produce so good an effect upon the crop. Of these various fertilizers the intelligent farmer must select that which is the most economical in his own locality—with the assurance that land which is adapted to turnips, is also adapted to this class of manures. And he may also be assured that no kind or quantity of manure will induce turnips to grow in land chilled by stagnant water, to never so slight a degree.

We have incidentally referred to the sowing of the seed, in another portion of this report. It will be seen that only one method can be adopted, by those who select the land and apply the manure according to our directions. It would be difficult to furrow and ridge for deep drill husbandry, a piece of newly-ploughed sod-land although it may be done as we shall see hereafter; and we had better resort, therefore, to the ordinary method of sowing on a flat surface with the common seed-sower. We are satisfied that there is no method so economical as this, and none which will produce a smoother and more substantial root. The old system introduced into this country by Cobbett, involved the necessity of a large amount of labor, and that trouble some application of manure, which renders the cultivation of the Mangel so expensive. There is no doubt that Cobbett's system produced large crops. So will the system which we recommend, if properly applied.

The following abstract of Cobbett's method is contained in an address delivered by Col. Pickering before the Essex Agricultural Society in 1820; and will be read with interest by every Essex County farmer at the present day.

The Ruta Baga. This root may be cultivated in the manner just described for the Mangel Wurzel; the ground being prepared in the same manner. In England, they appear to be most commonly grown in rows twenty-seven inches apart, with the plants at a foot distance in the rows. But William Cobbett, who in a small book published in New York, has minutely described his own practice, both in England and Amer-

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ca, asserts, that the largest crops are attainable by growing the Ruta Baga in rows four feet apart, with the plants about ten inches or a foot distant from each other in the rows; and that in this mode of culture he has raised, in England, *thirty tons* to the acre.

For this mode of culture, the manure, being deposited in furrows four feet apart, is covered by four back furrows, two on one side and two on the other, of each line with manure; by which little ridges are formed; and if the ploughing be deep (as it ought to be) there will be a deep gutter between every two ridges. The tops of the ridges being made fine with a light harrow, or with rakes, the seeds are sown with a drilling machine; or by hand, which Mr. Cobbett says he prefers to a drill. Two men sowed for him seven acres in three days, using about four pounds of seed, in this manner: a man went along by the side of each ridge, and put down two or three seeds in places at about ten inches from each other, just drawing a little earth over, and pressing it on the seed, in order to make it vegetate quickly, before the earth became too dry.—But, he adds, the seven acres might have been sown by one man in a day, by just scattering the seeds along on the top of the ridges, when they might have been burried with a rake, and pressed down with a spade or shovel or other flat instrument. But he used a light roller, to take two ridges at once, the horse walking in the gutter between. The time of sowing the seeds must vary with the climate. On Long Island Mr. Cobbett's trials of one year, led him to prefer the 26th of June; but in our own county, I would not pass the middle of that month.—Indeed, I think it expedient (in order to ascertain the fittest time) to commence sowing the seed, as soon as the ground can be prepared, after the planting of Indian Corn, and to continue to sow in small plots, weekly, until the middle of June.—As soon as the plants are fairly up; hoes and the fingers are to be used, taking out all the plants but one in each ten or twelve inches. As soon as weeds appear, hoeing is to commence, hoeing the tops of the ridges to the width of about six

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inches, showing the plants distinct and clean. Then the plough is introduced taking a furrow from the side of one ridge, going up the field, a furrow from the other ridge coming down, then another furrow from the same side of the first ridge going up, and another furrow from the same side of the other ridge coming down. In taking away the last two furrows, you go within three inches of the turnip plants. Thus a ridge is formed over the original gutter. The next process is, to turn these furrows back again to the turnips, This hoeing and ploughing is to be repeated when the appearance of the weeds requires it; and afterwards the few weeds which may rise are to be hoed or pulled up. In this way Mr. Cobbett thinks a thousand bushels of Ruta Baga may be raised on an acre that will yield fifty bushels of Indian Corn.

In describing the culture of the Mangel Wurzel, transplanting was mentioned, to fill vacant places. The same may be practiced with the Ruta Baga. But unless those vacant spots be dug afresh, the transplanted roots will be much inferior to their untransplanted neighbors, as I found in my last years experiment. And Mr. Cobbett mentions the like difference in his practice. At the same time he strongly recommends the raising of the Ruta Baga, by transplanting for entire crops, as far preferable to the sowing of the seeds, and letting the plants grow where their seeds first vegetated. But then he considers it indispensible to perform this transplanting on ground fresh ploughed, and by sowing the seeds in beds, to raise plants as we do for cabbage, a month's more time is allowed to prepare the ground for their reception. In the work of transplanting, the plain dibble is a necessary instrument. The hole made by it must be fully as deep as the length of the root; and this being introduced (taking care in putting it into the hole not to bend its point) the dibble is thrust down by its side, and by a dexterous twist, or circular motion of the hand, the earth is pressed close against the root in its whole length. The largest crop of Ruta Bagas he ever raised in England, Mr. Cobbett says, was by transplanting on seventeen acres; which produc-

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ed thirty-three tons to the acre; the rows (on ridges) four feet asunder, and the plants a foot asunder in the rows.

In this mode of raising the Ruta Baga, by transplanting the entire crop, so much time is gained for preparing the ground, that two crops of weeds may be destroyed, by that number of ploughings; the first in the beginning of June, and the second immediately before transplanting. But Mr. Cobbett recommends a previous deep fall ploughing and another deep ploughing in April, of the ground intended for the Ruta Baga. The like two deep ploughings will be equally proper and beneficial for the Mangel Wurzel and carrots.

Among the advantages of the transplanting method, mentioned by Mr. Cobbett, one is, "that it saves almost the whole of the after culture. There is no hoeing; no thinning of the plants; and not more than one ploughing between the ridges."

A method somewhat similar to this was adopted by Messrs Tristram and Henry Little of Newbury, who, in 1823, received a premium from the Massachusetts Society for raising the greatest crop of turnips on an acre. It is a valuable and interesting experiment. Their statement says:

"The lot is on the north side of a small swell on our farm in said town; the soil is a yellow loam on a gravelly bottom, and had been down to grass two years; in July, 1823, the lot was mowed and the hay was made on the same land, and the produce was one ton and eight hundred. The sward was then ploughed as deep as would turn over, and twice harrowed; furrows were then opened at a distance of three feet apart, ten ox cart loads of manure, mixed with ten loads of marsh mud and sod, were put into the furrows, which were covered with a plough; one pound of seed was sown with a machine, one row on each ridge, and a roller was made to pass over the same, which completed the sowing. As soon as the third leaf was grown they were thinned to the distance of one foot apart in the rows. After that they were three times ploughed between the rows, and hoed twice; the harvesting was in November, and the product was nine hundred and eight bushels."

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The method adopted by Messrs. Little has the advantage of being more simple and practical than that described by Cobbett, whose estimate of the capacity of modern labor, is indicated by his supposition that one man could sow seven acres of Ruta Bagas in one day. The crops raised in both these cases are large, but not larger than those raised in a simpler manner—twenty-four hundred bushels having grown last year on two and a half acres of land belonging to the Chairman of this committee.

Turnips should be harvested early in November. The safest and most convenient place for storage in this climate, is a dry cellar, into which they should be put (first having been topped with a knife) with the tap root entire and such earth as will cling to them, after a day or two of drying, and after being transported from the field, and passed through the handling necessary to pack them. If stored in a pit they should be freed from dirt before being thrown into the pit, and a rough roof raised over them covered with earth. Space for ventilation and for straw covering should be left between the roots and the roof. A tile or a small piece of stove pipe will serve for a ventilator.

The best variety of Ruta Baga now known, is Skirving's King of the Swedes. We would recommend that what seed our farmers raise for their own use should be from this root.

It is most earnestly to be hoped that the attention of the farmers of this county will be more strongly directed to the raising of Root Crops in the future. The cultivation of more perishable crops, and of those fitted almost solely for human consumption, is a secondary matter when compared with the raising of those more important products upon which the permanent success and developement of the agriculture of the county depend. Whatever tends to increase our stock of cattle, by adding to our store of winter food for them, goes far towards elevating this great branch of industry to the entire agricultural capacity of the county, and towards giving us new and more substantial prosperity.

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The Committee would call the attention of the Society to the following statement made by Mr. J. J. H. Gregory of Marblehead, with regard to his crop of Turban Squashes, entered for premium. The suggestions of Mr. Gregory with regard to the cultivation of the Squash, the mode of manuring, planting, thinning the vines, &c., are worthy of careful consideration—particularly at this time when the crop has so extensively failed under other hands than his own.

The Committee, to whom he has presented his vouchers for measurement of land, and weight of crop, award him the first premium of $8.

GEO. B. LORING, Chair'n,
RICH'D S. ROGERS,
M. C. ADAMS,
CHARLES L. TOZIER,
} COMMITTEE.

MR. GREGORY'S STATEMENT.

I find on a survey of the land planted to Turban Squashes, an area of 20,313 feet, as per accompanying certificate. Last year this tract was planted in part to Marrow Squashes, and the remainder to seed cabbage, receiving no manure broadcast, and one handful of Coe's Superphosphate of Lime to each hill or plant. The past season it received a passable dressing broadcast of barn yard manure, which was ploughed under by the large "Lynn" plough, and the soil when sufficiently dry was well harrowed. At about the twentieth of May the hills were marked off at distances of about 8 by 9 feet, and half a handful of Coe's Superphosphate applied to each hill, it being spread over a space of about 18 inches in diameter and well worked in with

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the fork to a depth of about five inches. Four seeds were planted to each hill, and soon after the plants were well up the soil was stirred with a cultivator, after which the weeds were hoed from around the plants.

As soon as the runners had fully presented themselves, the plants were reduced to one to each hill, and the soil was again cultivated, followed by the hoe, just sufficient earth being drawn to the stem of the vine to prevent it being torn up by the wind. I have never practiced "hilling" my squash vines, having never seen the need of it. Though but one vine was left to the hill, the ground was very well covered, with the exception of a few square yards in the lowest portions of it. The striped bug gave but little trouble, requiring but few of the hills to be limed. Of the large black pumpkin bug, I have seen but one specimen for the past two years. The yield of squashes was about 5,600 pounds,—upward of a hundred pounds having been picked before the final gathering;—a yield of which I should make no note were the season an ordinary one.

The characteristics of the Turban are great specific gravity, thickness of flesh, fineness and dryness of grain, and a sweet and rich flavor,—these are usually its characteristics—the quality occasionally falls below this standard. On the whole I consider that the Turban in quality (it much resembles the Acorn Squash) approaches very near to the Marrow when in its palmiest days, and is at present the best *fall* squash cultivated,—the Hubbard which does not mature its qualities till the close of November being still the best for winter use,—except to those who prefer an exceedingly dry squash. Whether or not the Turban has sufficient indurability to retain its present good qualities, and not deteriorate, like the autumnal Marrow, time alone must determine.

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GRAIN CROPS INCLUDING FLAX.

The Committee on Grain Crops report:

That two entries for premium were made by Mr. S. A. Merrill of Salem, one of Wheat and one of Rye. The Committee find that Mr. Merrill's entry does not come within the rules of the Society, requiring not less than one acre. his entry being only about three-quarters of an acre. They regret that this is so, as they regard the crops of Mr. Merrill well worthy of a premium, the Rye being at the rate of 46 bushels per acre, and the Wheat at the rate of 23 bushels per acre.

Mr. E. G. Hyde of Danvers, entered one-quarter of an acre of Flax for premium.

The Committee are much gratified that our farmers in old Essex County have commenced the raising of Flax, though upon a small scale, but the success of Mr. Hyde the Committee hope will be a stimulus to others to try the experiment of Flax growing also.

Fifty years ago, most of the farmers in the county raised their own Flax sufficient for family use, and if the war continues and cotton should hold its high price as at present, all farmers will be obliged to raise their own Flax for family use if no more, and we believe it may be made a profitable crop.

The State of Ohio and several other Western States have gone largely into the cultivation of Flax, and we believe find it a profitable crop.

The Committee are of the opinion that if Mr. Hyde had sowed fifteen pounds of seed instead of ten, his crop would have been much better, and the flax of a finer texture, and would have produced more than twelve hundred pounds to an acre, after rotting, in its rough state.

The Committee would recommend to the Trustees to continue the premium for the cultivation of Flax.

Mr. Hyde has about two bushels of very fine seed from his quarter of an acre, which is a very good yield, and at present prices (five dollars per bushel) would bring forty dollars per acre in addition to the value of the Flax.

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We would recommend that the first premium of $10 be paid to Mr. E. G. Hyde.

DANIEL ADAMS,
CHAS. P. PRESTON, } Committee.

STATEMENT OF MR. E. G. HYDE.

It has been a long time since our attention has been turned to Flax raising; owing to the prosperity of the country it was not considered profitable. But now we have a civil war upon us, which has greatly reduced the supply of cotton, and caused the price of cotton cloth to be so high that I thought I would try an experiment in raising Flax. When I was a boy my father used to raised it which gave me some knowledge of it. I measured off a quarter of an acre and sowed ten pounds of seed. It came up and grew finely; when I sowed it I was not aware of any premium being offered, or I think I should have put on fifteen pounds to the quarter of an acre, thereby growing a finer quality. I think if the war still continues we shall be obliged to turn our attention to Flax culture. In rotting it needs careful attention. I am unable to say at present whether it is a profitable crop. But we know it will be very acceptable when made into cloth.

METHOD OF CULTURE.

The crop of 1861, was grass to which no manure was applied. That of 1862 was corn to which four cords of compost to the acre was applied. The soil was a loam, ploughed in May six inches deep, spread on about six feet manure valued at $4, and harrowed it in, then sowed the seed. Cost of

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ploughing $1.50, seed and planting $1,25. I pulled it in August and bound it up in small bundles, and shocked it, to remain in the field about two weeks. Cost of harvesting $4.

IMPROVING PASTURE AND WASTE LANDS.

The Committee on Waste Lands report:

There was but one entry, that of William Foster of North Andover. The Committee examined the land on the 28th of July and found it very uneven both as regards quality and dryness, as about a quarter of it consisted of a gravel knoll and the remainder wet land, requiring drainage, which was as Mr. Foster stated, covered with alders, birches and brakes, when he commenced reclaiming it. There was not a great crop of grass on the land at the time we saw it, and we should not have estimated it as high as Mr. Foster has, but it was quite green then and might have grown considerably afterwards. Mr. Foster stated to the Committee that the grass was very much winter killed, which accounted for its backwardness and thinness. But we think if he had manured higher, his grass would have got a better start in the autumn and would not have been so liable to have died out, and his crop might have been double. In answer to a remark of this kind, Mr. Foster stated he was aware he had not manured it enough, bnt he had used all the available manure he had. Mr. Foster in his statement accompanying this report, makes a nett profit of $173.50 on the proceeds of the five crops. We think he has been more fortunate than most farmers in his help, or his profits would have been less. For instance, for the labor of harvesting the crop of 1861 he has charged but eight dollars, yet Mr. Foster stated to the Committee that this was the actual cost. It would seem

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if land that was comparatively worthless can be made to pay a a profit, while in the process of being reclained there should have been more entries than one, and for the encouragment of other farmers in the county as well as a reward of industry on the part of Mr. Foster, we recommend that he receive the second premium of $10.

FRANCIS DODGE,
For the Committee.

STATEMENT OF WILLIAM FOSTER.

I offer for inspection and premium, a piece of what was Waste Land, for it was well covered with brakes, briers, kil-lamb, alders, blueberry bushes and birches. Said piece of land contains two acres, one hundred and forty rods. Herewith I present the cost of labor and manure, and also the value of the crops for five years:

September, 1858, ploughing and removing stone,	$21 00
April, 1859, seed, harrowing and burning sods,	8 00
October, 1859, ploughing,	12 00
May and June, 1860, seed potatoes, labor and manure,	80 00
October, 1860, labor digging potatoes,	10 00
May, June and July, 1861, seed potatoes, labor and manure,	80 00
October, 1861, digging potatoes,	8 00
May and August, 1862, labor and seed,	28 00
August, 1863, harvesting three tons of hay,	8 00
	$255 00

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CREDIT.

August, 1859, six and one half bushels Rye, fifteen hundred of Oat Fodder, and twelve hundred of Rye straw,	$18 50
October, 1860, three hundred bushels potatoes at forty cents per bushel,	128 00
One half acre Corn fodder, one bushel beans, and twenty bushels diseased potatoes,	12 00
October, 1861, three hundred and fifteen bushels sound potatoes,	126 00
One half acre Corn fodder, and thirty bushels diseased potatoes,	10 00
August, 1862, eighty-five bushels of Oats and thirty hundred of Oat straw, which sold in April, 1863, for	89 00
August, 1863, three tons of hay as estimated at fifteen dollars per ton,	45 00
	$428 50
Expense,	255 00
Profit,	$173 50

MANURES.

The Committee herewith submit their report of the experiments with manures, as prescribed by the State Board of Agriculture, and which, as will be recollected, are to extend through a period of three years. Last year the first premium of $25 was awarded to Benjamin P. Ware, of Marblehead, for an experiment which was extremely satisfactory in its general results.—

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This year Mr. Ware completes another three years' experiment with manures, on a piece of land, which, in the opinion of the Committee, is not well adapted for the purposes of this experiment. It had been cultivated six years for onions, and must have been pretty liberally supplied with manure. Of course the difference in the produce of the crops on lot No. 5, and the other lots would not be very great, nor would the results of the different ways in which the manure was applied on these lots, be very marked. His statements for the three years are herewith annexed, and he appears to have conformed to the prescribed rules of the experiment. It would have been more satisfactory to the Committee, and doubtless to the Society, had he drawn such general inferences as the experiment might seem to warrant. Having a thorough knowledge of the land, the quality of the manure, the peculiarities of the season, and of other elements necessary to be taken into the account, he might have made the whole experiment more valuable in its general teachings, than it is at present. We award to him the third premium of $15.

ALLEN W. DODGE,
WM. LITTLE,
JOSEPH GOODRIDGE,
} COMMITTEE.

FIRST STATEMENT OF BENJAMIN P. WARE.

I would respectfully submit the following statement of my first year's experiment as to the best mode of applying manure.

The piece of land selected for the purpose is nearly level, and of a uniform quality, it is a dark loam, nine inches deep, resting upon a gravelly subsoil, is retentive of manure, neither heavy, nor light, but fine and suitable for gardening having

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been cultivated during six years for onions, and manured annually with good compost manure, seven cords per acre.

May 19th, I divided the land into five equal lots each measuring 40 by 200 feet. Upon lot No. 1 was spread evenly at the rate of eight cords per acre, manure composted from meadow mud, sea and barn manure, in about equal parts, the whole completely saturated with night soil, all forked over, and well mixed twice before using, then ploughed the whole land eight inches deep; then spread an equal quantity of the same manure upon lot No. 2, and cross ploughed the whole land four inches deep, then manured lot No. 3 in like manner, and harrowed the whole land thoroughly.

May 22d, marked out the rows 3½ by 3 feet, with a chain, and planted six kernels of common eight rowed yellow corn in a hill one inch deep, eleven rows in each lot. Then spread upon lot No. 4 the same quantity of the same manure as on the other lots, and let it remain upon the surface.

Lot No. 5 had no manure. June 17th, worked the land both ways with a horse hoe, so closely to the corn as to require no use of the hand hoe. July 20th, cultivated both ways and hoed the corn carefully. August 10th, went through and pulled up all weeds that had escaped the hoe. October 15th, cut up the corn close to the ground and stooked it.

Nov. 1st, harvested and weighed the crops on the several lots, resulting as follows:

Lot No. 1, net weight of corn and stover,	2950	pounds
" " of sound corn in the ear,	1040	"
" " of unsound corn,	39	"
" No. 2, net weight of corn and stover,	2740	"
" " of sound corn in the ear,	1022	"
" " of unsound corn,	36	"
" No. 3, net weight of corn and stover,	2110	"
" " of sound corn in the ear,	910	"
" " of unsound corn,	27	"
" No. 4, net weight of corn and stover,	1970	"
" " of sound corn in the ear,	845	"

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Lot No. 4, of unsound corn,	29	pounds
" No. 5, net weight of corn and stover,	1690	"
" " of sound corn in the ear,	750	"
" " of unsound corn,	23	"

A bushel of the ears weighed 47½ pounds, and yielded 39½ pounds of shelled corn dry enough to grind, or 21 quarts of shelled corn, this kind of corn having a small cob.

A SYNOPSIS OF THE WEATHER AS AFFECTING THE CONDITION OF THE LAND DURING THE MONTHS OF

	First Third.	*Middle.*	*Last.*
MAY	Moist.	Dry.	Moist.
JUNE	Moist.	Dry.	Dry.
JULY	Very dry.	Moist.	Moist.
AUGUST . . .	Moist.	Moist.	Moist.
SEPTEMBER.	Dry.	Dry.	Dry.

Marblehead, Dec. 23, 1861.

SECOND STATEMENT OF BENJAMIN P. WARE.

In continuing the experiment commenced 1861, April 17th, 1862, I ploughed the whole of the land fine, and sowed one and a half bushels Spring Wheat, after soaking it two hours in strong brine; then harrowed it in and sowed one bushel red top seed, twelve quarts Herds grass, and seven pounds Clover seed, all mixed together; then brush-harrowed and dragged it, leaving the surface smooth and fine.

Aug. 12th, cradled and stooked the grain in the field.

Sept. 3d, weighed the unthreshed grain and stored in barn, threshed it immediately and allowed the grain to remain in

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chaff a week, then winnowed and weighed the clean wheat which resulted as follows :

Lot No.	1,	produced	745	lbs.	unthreshed	wheat,	302	lbs.	wheat,	443	lbs. straw.
"	"	2,	"	665	"	"	"	273	"	"	392	"	"
"	"	3,	"	685	"	"	"	268	"	"	417	"	"
"	"	4,	"	640	"	"	"	269	"	"	371	"	"
"	"	5,	"	670	"	"	"	246	"	"	424	"	"

For the sake of convenience in reference, I convert these products into rates per acre; which may be seen in the table annexed. Allowing sixty pounds of wheat per bushel.

Lot No.	1	produced	at the rate of	27 1-15	bush.	wheat	per acre,	2412	lbs. straw
"	"	2	"	"	"	24⅜	"	"	"	"	2134	"	"
"	"	3	"	"	"	24 1-6	"	"	"	"	2265	"	"
"	"	4	"	"	"	24¼	"	"	"	"	2020	"	"
"	"	5	"	"	"	22 1-6	"	"	"	"	2308	"	"

It will be observed that the relative weight of straw is small, but it was cradled very high, and full one third was left in the stubble.

A SYNOPSIS OF THE WEATHER.

	First Third.	*Second Third.*	*Last Third.*
MAY	Dry.	Dry.	Dry.
JUNE	Moist.	Dry.	Moist.
JULY	Moist.	Moist.	Moist.
AUGUST . . .	Moist.	Moist.	Moist.
SEPTEMBER.	Dry.	Moist.	Dry.

Marblehead, Nov. 14th, 1862.

THIRD STATEMENT OF BENJAMIN P. WARE.

The acre of land upon which was commenced the experiment on the application of manure in 1861, being in grass this

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year, was mown July 1st, and the hay from each lot was weighed July 3d, resulting as follows:

Lot	No.	1	produced	805	pounds.
"	"	2	"	625	"
"	"	3	"	640	"
"	"	4	"	615	"
"	"	5	"	740	"

The severe drought in June affected the crop very injuriously which accounts for the small product.

A SYNOPSIS OF THE WEATHER.

	First Third.	*Second Third.*	*Last Third.*
MAY.....	Wet.	Moist.	Dry.
JUNE.....	Dry.	Moist.	Dry.
JULY.....	Dry.	Wet.	Wet.
AUGUST...	Wet.	Moist.	Moist.
SEPTEMBER.	Moist.	Moist.	Moist.

Marblehead, Nov. 14th, 1863.

TREADWELL FARM.

The Committee on the Treadwell Farm report:

That early in the year Mr. Brown, the tenant, apprised them of his inability, from ill health and other causes, to continue on the farm under the lease, and the subject having been referred to the Trustees for consideration, the following action was taken by them at a meeting held March 24, 1863:

Voted, That the Committee on the Treadwell Farm be and hereby are authorized to make all proper arrangements with N. W. Brown, the tenant, for closing the lease with him, and

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for the substitution of some other person under the lease, he being desirous to retire from the same, provided no expense be incurred by the Society in making the substitution.

The Committee accordingly proceeded to accept John H. Caldwell, of Byfield, as lessee, Mr. Brown having assigned to him all his rights and privileges under the same. Before these arrangements were completed, the season had so far advanced that Mr. Caldwell entered upon the farm under serious drawbacks to effect much in its management the present year. In fact there was but little he could do, except to obtain a general knowledge of the farm, to gather the hay-crop and conduct the farm experiments that were already in progress. It is confidently believed that he will be prepared next year to put himself in earnest to the business before him,—to carry on the farm in such a manner as to be creditable and profitable to himself, having at the same time an eye to its progressive improvement, and to conduct the specific experiments which may be confided to him by the Committee and which are or should be intended to have a bearing on the main result. That result—the great agricultural problem which this Society is at work to solve, is the renovation of exhausted lands by such means as are available to most New England farmers.

Indeed, the leading idea connected with the acceptance of the Treadwell Farm by the Society, should constantly be borne in mind not only by the Committee, but by every one who observes its management and passes a judgement upon it. It was utterly stript and worn out like too many of the farms in the county,—land exhausted, and buildings dilapidated,—but so situated that if it will pay to restore a farm any where, situated as this was and as many others are, it will prove a blessing and a boon to the whole county. If it will not pay, after a fair trial of twenty years, then a fact will be obtained, though a melancholy one, which ought to be known as a warning to others.

This farm labors under no difficulties beyond what is common to all other property of a similar kind. What we want to

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arrive at is the truth, let it land us where it may. We should do onrselves and the public a great wrong to abandon the experiment without a fair and thorough trial. Tenants may be discouraged and fail from want of skill, capital or other cause, in arriving at a profitable result, but one failure, or two, or many, does not settle the question. How many enterprises have proved in the end profitable, which have gone through difficulties, that seemed at times insurmountable? It is very easy to doubt and to throw distrust upon any undertaking, but is it right to defeat by anticipation an object of so much importance as the development of a great practical truth? We ought to indulge the hope of success, at the same time we should not fear to meet with failures. It is no failure whatever the event may be, if we give the experiment a fair trial, for this is the task, let it be repeated, this society has taken upon itself. It is not responsible for the result of it,—this rests not with us—but we are bound to the performance of the duty voluntarily assumed by us, and every member of the Society should aid the tenant by his experience and encourage him in the discharge of his difficult task, by his ounsels. Indeed most substantial aid has been rendered by one who has taken from the start an active and intelligent interest in the farm, as will be seen by the following communication:

Lynnmere, Oct. 26th, 1863.

Allen W. Dodge, Esq.,

Dear Sir,—I think that the Treadwell Farm ought to have a decided turn given to its management by the adoption of some one branch of agricultural industry, not to the exclusion of others, but to which others should be subservient. I have thought over the matter a good deal for the purpose of satisfying myself as to what the farm can accomplish under good management, as a stock, dairy, vegetable, grain-growing or fruit producing farm, connecting it with the idea of making one of these the primary object of culture. There is no doubt that the land is capable of growing good roots and good corn, and

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that the pastures are better adapted to sheep than for any other kind of stock. It is well divided for the purpose and it commands the easy supervision of the farmer.

So well satisfied I am of its many advantages for profitable sheep-husbandry, that for the purpose of making a beginning in this direction, if it meet the approval of the Committee, I will give to the farm a flock of forty, 2 and 3 years old ewes (long wooled mutton sheep) now in fine breeding condition, together with the use of a ram of my own selection and at my own cost. The profit or loss of the flock will accrue to the tenant, but the flock is intended to be given and to go with the farm, and to revert to me again, if sheep-husbandry should be abandoned. The reasons for this stipulation are obvious enough, but it is well to have them distinctly stated. My motive in giving the sheep is to secure a systematic course of sheep-husbandry, in which the tenant is to reap every advantage, but not to be converted to his own use by a sale of the flock, or the ownership to be affected by his death or by a change of tenancy.

I have likewise another object in view. I wish to have ascertained what the profit and loss of sheep-husbandry is in Essex County, under the conditions of soil and climate which the Treadwell Farm presents. This flock will, if accepted, come on to the farm at the right moment to enable the tenant to keep an accurate account in *weight* of all the food given to them. The sheep can be weighed and the percentage of food to live weight can be ascertained exactly; the same process of weighing can be gone through with before shearing in the spring, adding the increase by lambs. The fleeces also can be weighed; in fact nothing in relation to the management, food and product of the flock need be left to conjecture. The time required to do this amounts to nothing, if systematically conducted. It is only requiring him to do what every flock master should do.

I should consider the increase of the flock above the original number to belong to the tenant, as well as all the wool; and

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keeping the flock up to the mark, I should stipulate that the breeding flock should be increased the first year to fifty, by a reservation of at least twenty ewe lambs, after which it might be kept at about that rate, or one sufficient to make up for losses and to replace ewes that had better go to the butcher, the selection of sheep and lambs to be under the control of the Committee.

These sheep were purchased in Canada six weeks ago, from a large flock of excellent sheep, of Lancaster origin, but better known by name of Canada sheep. They do not aspire to the dignity of a celebrated breed, but are such as the best farmers in that region (Woodstock) ordinarily possess. They come from a colder climate and a harder soil than that where they will be placed, if accepted by the Committee and the tenant of the Treadwell Farm.

I propose to put either one of my Oxford Down bucks, or a Shropshire Down buck, to them. The ewes are well fleeced and will weigh on an average, I think, about 110 pounds. I regret to say that some of them are not docked, as they should have been when lambs, as it detracts somewhat from their good appearance.

Truly yours,

RICHARD S. FAY.

It need hardly be added that this liberal and timely gift was accepted by the Committee and a vote of thanks to the donor passed by them and entered upon their records. Mr. Caldwell, the tenant, readily came into an arrangement so manifestly for his advantage. The flock has been received by him, together with an Oxford Down buck, loaned to the farm as above stated. It is to be hoped that he will do all in his power to make this new experiment a source of income to himself and an honor to the Society. A sub-committee has also been appointed from the farm Committee to take charge of the donation, and regulate all details of its management under the general provisions and terms of the same.

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Mr. Caldwell makes the following report of the experiments with manures heretofore instituted by the Society, no new series having been started this year, owing to the change of tenants.

CONTINUATION OF EXPERIMENTS ON THE TREADWELL FARM, COMMENCED IN THE YEARS 1861 AND 1862.

The lot commenced on in 1861, (it being the third year) was in grass, which from some cause started quite poorly in the spring, and was also much affected by the drought in June.

Lot	No.	1	yielded	925	pounds	of hay,
"	"	2	"	747	"	"
"	"	3	"	408	"	"
"	"	4	"	370	"	"
"	"	5	"	30	"	"

2480 pounds of hay.

WEATHER REPORT FOR 1863.

	First Third.	*Second Third.*	*Last Third.*
MAY	.96	.671	0 in.
JUNE	1.232	.178	.44 "
JULY	.629	11.288	3.76 "
AUGUST . . .	.676	1.131	3.16 "
SEPTEMBER.	.01	1.21	.77 "

LOT COMMENCED ON IN 1862.

Potatoes last year, barley the present. Land ploughed 6 inches deep.

April 23d, barley sown 5 bushels. Same quantities of grass seeds as last year.

Barley harvested first week in August:

Lot	No.	1	yielded	7⅛	bushels	of barley,	and	735	lbs.	of straw.
"	"	2	"	8½	"	"	"	735	"	"
"	"	3	"	7	"	"	"	605	"	"
"	"	4	"	7⅛	"	"	"	655	"	"
"	"	5	"	20 quarts			"	110	"	"

Barley 31 bushels. and 4 qts. 2840 lbs of straw.

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In concluding this report on the Treadwell Farm, the Committee are reminded that nearly one fourth of the twenty years lease has expired, and that with the exception of the new and commodious barn erected by the Society, the underdraining of the land contiguous to the same, and the accession to the farm of the flock of sheep to be kept for the benefit of both the Society and the tenant, we have not as yet much to show in the way of results. But we should look forward to the termination of the lease and anticipate the history it will then have to tell. If from year to year we shall faithfully do our duty and the tenant his, we shall surely have deserved well of those who are interested in the agriculture of our county.

ALLEN W. DODGE,
JEREMIAH COLMAN,
FRANCIS DODGE,
GEO. B. LORING,
DANIEL ADAMS,
WM. SUTTON,
CHAS. P. PRESTON,
R. A. MERRIAN,
} COMMITTEE.

Salem, Dec. 1st, 1863.

Dear Sir,—I desire to present to the Committee having in charge Mr. Fay's donation of sheep to the Essex Agricultural Society, Eaton's Improved Sheep-rack. It combines so many advantages, by the way of convenience and economy in feeding, that I deem it of the utmost importance to all sheep-feeders.

Trusting that the experiment of keeping sheep on the Society's farm will prove to be an encouragement to our farmers to adopt this branch of husbandry, I am

Truly yours, etc.,

GEO. B. LORING, Chair'n of Com.

HON. ALLEN W. DODGE.

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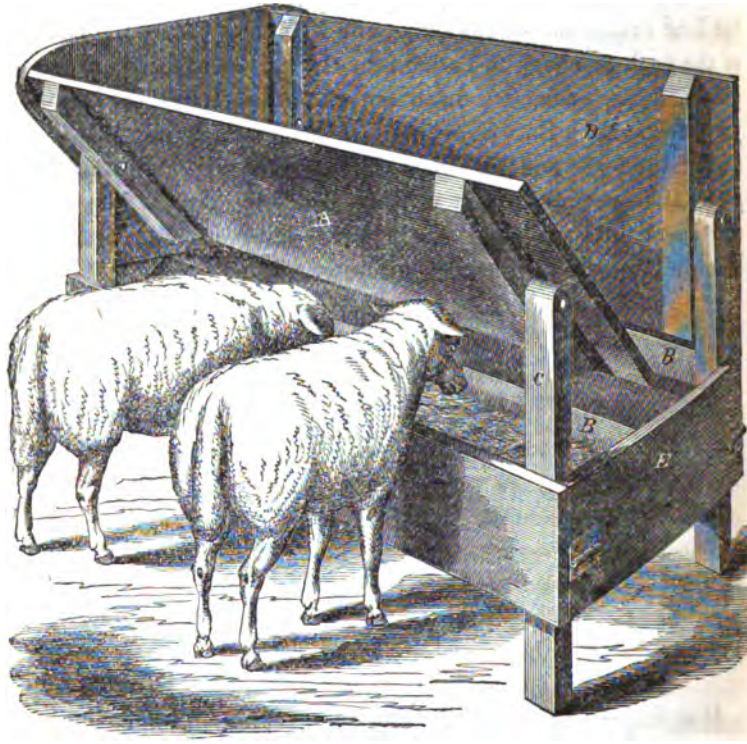
The Committee accepted the proposition of Dr. Loring, with a vote of thanks; and adopted the rack, as the best adapted to the purpose of economical sheep-feeding.



EATON'S SHEEP RACK, WITH HALE'S IMPROVEMENTS.

A. Side of rack, for feeding hay.

B. Troughs for grain and roots.

C. Corner post, to the top of which is pinned the cleat which supports the side of the rack.

D. Side of rack, brought to a perpendicular, to prevent the sheep from reaching the trough, while grain is being fed to them, or while the trough is swept out.

E. End of rack, which turns down with a hinge, as a convenience in sweeping.

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FARMS.

The Committee on Farms report:—

It is a matter of disappointment this year, as it has been too often in years past, that the Committee have not been called on to visit a single farm in the county in their official capacity. They would gladly give a detailed and statistical account of many farms which might have been brought to their notice; the record of which would be of great value to the farming community. But they have been obliged to make such observations as could be made during social visits on their own farms; and they must content themselves with such general remarks as would arise from the slight investigations made on such occasions.

The agriculture of the county has received rather more than usual attention during the last season; and notwithstanding the difficulty and expense of obtaining labor, the results have been highly satisfactory. The season has not been entirely propitious, it is true; the early drought and the later floods having interfered very much with some of the most important farming processes. But, nevertheless, our crops have been, in many instances, abundant, and it is seldom that the markets have afforded better advantages. The fruit crop has been nearly a failure. Small grains have suffered much from drought and subsequent rains. Root crops, which are beginning to be extensively cultivated, are abundant. The quantity of hay cut, whatever may be its quality, is not below the average. And at no time have our pastures produced such a luxuriance of herbage. Our farmers commence the winter with well stored barns, and their cattle in unusually good condition. It is doubtful whether the 150,000 acres of land in the county, employed for farming purposes, have ever yielded a larger return for the labor bestowed upon them.

The enterprise of our farmers and their interest in their calling have not abated. In addition to the Agricultural Society which has been so long established in the county, and has en-

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listed the services of some of our most useful, influential and public-spirited citizens, we have now two town associations, both in flourishing condition, and three farmers' clubs, diligently devoted to the investigation of topics belonging to practical agriculture. Various sections of Massachusetts, and of other New England states, have supplied themselves with many valuable cattle of pure blood, particularly Ayrshires for the dairy, from the breeders of Essex. The three-year-old stallion, which took the first premium this season at one of the largest exhibitions in Vermont, was bred in this county, as were his sire and grandsire before him. Some fine specimens of Shorthorn blood have been brought to our notice this year; descended from one of the best bulls of this class in New England, and introduced into our section of the county two years since. The interest in sheep-husbandry has materially increased; and, for the first time for many years, fine-wooled sheep have been introduced among us from the various families of Vermont Merinos.

We mention these facts, as proofs that our agricultural enterprise is not on the wane. The various root-crops of our county still hold the high position they have so long held among the cultivated crops of Massachusetts. The cultivation of fruit is still pursued with untiring diligence. The hay crop of Essex county fills its usually important place in the market. And in addition to all this well-known and recognized industry, we add with pleasure the new evidence of skill and attention which has been brought to our notice.

Much, however, remains to be done; and to a few points of improvement we propose to refer in this report.

MACHINERY.

One great obstacle in the way of profitable agriculture at the present time, is the scarcity of labor. Wages of farm hands have increased to such a degree, during the past year, that it seemed at one time as if the earth must be abandoned to its

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spontaneous productions. In this condition of affairs, the importance of good labor-saving farm machinery becomes very apparent. The stout and heavy and unwieldy weapons, with which our ancestors subdued the wilderness, were useful enough when wielded by their own strong arms, whose strength was increased by a firm will and vigorous industry. But we can no more employ such implements in any modern profitable agriculture, than we could substitute the hand-labor of China for our own well-ordered and powerful engines. It is one of the most important questions which the farmer is called upon to decide—how far he can devote his capital to the best farm machinery?

It is indeed doubtful whether any machine can be employed in tilling the earth, in digging and manipulating the soil, in applying manure, in sowing seed, in harvesting, with so good an effect as that produced by the hand of the skillful husbandman. But this can be applied only to small tracts of land, unless by the employment of a large and expensive force. We must resort, then, to such machinery as will enable us to carry on our business economically and profitably.

Perhaps the time has not yet arrived when we can equip our farms with all the intricate implements which constitute a part of the outfit of an English farmer. We can, however, employ with advantage the improvements which have been made by the skill of our own people. In all the smaller tools, there is no doubt that we are far in advance of any other nation. Our shovels, and spades, and forks, and hoes, and rakes are light, well-balanced, and, when carefully made, very strong and durable. No American farmer would think it possible to carry on his farm with the implements used in most parts of Europe. At the recent International Exhibition at Hamburg, the steel-tined pitch-forks exhibited by American manufacturers, were examined with fear and trembling by the German farmers, who considered them dangerous instruments, when compared with their own clumsy, and by no means formidable wooden forks, used by them in their hay-fields and farm yards. We need

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not complain of our smaller agricultural tools, when compared with those of any other nation.

Perhaps the same may be said of our ploughs, upon the construction of which we have devoted so much time and skillful attention, during the last quarter of a century. It is a fact worthy of notice, however, that the American, who claims to have the best plough that can be made, is by no means the best ploughman. In this respect, many other people excel us; the Italian somewhat, even with his rude implement, and the Scotchman very considerably, with his model plough for heavy lands. That straight and even furrow, so characteristic of the farming of the latter, is but little known to us. And we would suggest that for ploughing our heaviest and strongest lands, the length of our ploughs from heel to point should be materially increased, and with it the length of the mould-board; believing as we do, that a plough thus constructed is more easily handled by an unskillful laborer, than one which is shorter, lighter, and more difficult to control.

Not so much in our plough, however, may any improvement be made for the benefit of those deficient in skill, as in those implements employed for pulverizing and cleaning the land. These are very important to the farmer who is engaged in raising roots, or any other crops which require careful cultivation. We need very much a convenient and effectual grubber and horse hoe; one which can be used previously to planting, to rid the land of weeds and grass roots; and afterwards among the plants for stirring the soil and keeping it clean. We need a light and cheap, and easily managed dibble, for seeding our turnips and mangolds and carrots. This of itself would save great labor in the outset; but we need still more some implement which will take the place of that great number of hands which we must now employ in weeding and thinning these crops.

Of the machinery now used in haymaking, we have a very good supply. The construction of the mowing-machine has gone so far, as to leave hardly anything to be desired in the way of improvement. And the skill of the farmer in its use

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has kept pace with the invention of the mechanic in its construction. It will not be an easy matter to improve our mowing-machines.

We wish we could say as much of the horse-rakes and tedders, which are in use among us. The problem of horse-rakes remains to be solved. It is unfortunate that the "revolving rake," with all its difficulty of management, should still stand very high on the list—in the estimation of many, who like clean-raked lands, and hay free from dust, the highest. It is unfortunate also that the mechanism of a tedder, which will work easily, with light draft, and effectually, should apparently be so difficult to devise. But so it seems to be.

For loading hay in the field, it will probably be difficult to invent a machine superior to a strong arm with a good fork. But for unloading hay in the barn, we would direct the attention of our farmers to "Wheeler & Merrick's Excelsior Pitch Fork." It is simple in its construction, can be managed by any able-bodied farm hand; and not only saves the heating and exhausting labor of pitching hay from a load, in a close barn, and perhaps to a great height, but it avoids the necessity of employing a large number of men in stowing hay, and in passing it from one part of the building to another. It is difficult to estimate the precise amount of labor which it will save. It is certain, however, that in raising a ton of hay to the top of a well filled mow, it can perform the labor of three able-bodied men, and save the time of three more. And more than all—when it is generally introduced, we shall see no more of those permanent scaffolds over the driveway of our barns, which, with their narrow scuttle-holes, are the most inconvenient design, which ever "entered the heart of man to conceive." And this brings us to the consideration of our

FARM BUILDINGS.

We do not propose to discuss the dwellings of the farmers of the county; for the location and style, and adornment of these structures depend so much upon the taste of the builder,

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and are intended so much to gratify taste as well as to conform to convenience, that any rules relating to them are not easily laid down. With regard to the farm buildings proper, those buildings intended to shelter the animals, and to store the crops of the farm, something more definite may be said. They should be as compact, and at the same time as commodious as possible. It is important to avoid as much as may be, all extravagance of roofing—for the roof is the most expensive part of the building to keep in repair. Whether the building be a stable, or a piggery, or a granary, or a barn, economy of roof should be one of the first considerations. It would be well to cover all these offices referred to with one roof if possible.—This may be done to a very considerable extent, by a properly arranged barn with a cellar.

Such a barn as this is rarely seen. There are many buildings erected for the purposes of a barn, which are more remarkable for their intricate and labarynthine passages, and their inconvenient arrangements than for anything else. In structures like these, the visitor is constantly astonished with some new and unexpected receptacle for hay, or some suddenly discovered retreat for a few cattle, or a concealed stall or two for horses, or a bit of a cellar, just where a cellar was least anticipated. He is never impressed with the simplicity, and convenience and capacity of the building, never surprised to find how many cattle can find shelter in it, nor what ample storage it furnishes for hay, grain, etc. And yet this is the great requisite for a barn.

In the cellar of a well-designed barn, can be found room for the deposit of manure, the storage of roots, and the shelter of swine. In the building itself, it is easy to arrange a granary, stalls for horses, and accommodations for cattle. The mows, bays, and space over the driveway, may be filled with hay, and whatever buildings may be required on the farm for sheep, or poultry, or for the protection of carts, wagons, etc., may be connected with it. A multiplication of buildings is always a misfortune to the farmer. It increases the original cost of

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construction, and the expense of keeping in repair. And it must necessarily require more labor, than a single, compact, and simple arrangement, where no great distance is to be traversed, and where everything is within easy reach.

A barn of parallelogram shape, forty-two feet wide, and of indefinite length, with entrance at one end, and exit at the other, furnishes the best accommodations, and the best opportunity for all sorts of conveniences, of any building that has been brought under our notice. Such a barn as this can be extended, without fear of destroying its convenience. A barn, constructed on this plan, comprises all that can be required for managing a farm, with the exception of those matters immediately connected with the house. Such a barn is the most useful and economical building which a farmer can erect, capable as it is of covering his crops, his cattle, and his manure.

CROPS.

The crops in the county, during the last season, have been, in most cases, abundant. Small grain, especially barley, has suffered much; the seed germinating slowly on account of the spring-drought, and the heavy mid-summer rains preventing the berry from reaching full maturity. The barley crop, one most adapted to the soil of this county, has suffered to the extent of one third of the average yield. Wheat has done well in many places. Winter rye gave a good yield. Corn did remarkably well, considering the wet season; filling rapidly in the warm days of early autumn. Root crops have been abundant, wherever the seed had a good opportunity to germinate. The size and quality of the mangolds and ruta bagas of this year have seldom been surpassed. Late sown English turnips have reached an unusual size. The onion crop has begun to regain its former excellence, before the days of the maggot; and at the present prices, it has been exceedingly remunerative. The failure of the crop of squashes, very generally in the county, constitutes one of the peculiar features in our farming this year; and in view of this fact, we would call the attention

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of the Society, and of cultivators generally, to the statement of Mr. J. J. H. Gregory of Marblehead, whose large crop of Turban squashes bears favorable testimony to his skillful mode of cultivation. Although the fruit crop has also failed, still the earth has yielded bounteously to the husbandman; and an unusually active market has enabled him to overcome the obstacles which scanty and expensive labor has thrown in his way. It is a fact worthy of notice that the markets of Maryland have been supplied this autumn with beets, turnips, carrots and cabbages from the farms of Essex county.

The great agricultural trial among us this year, has been the securing of our hay crop. In the early part of the season grass was so light as to promise, even on the best field, hardly more than half a crop, and that too, hay of a half matured and very inferior quality. It was not until the haying season had begun, and, with some of the small farmers, had gone, that the grass began to grow. And the unusual and extraordinary spectacle was presented in August, of a scanty crop of herds-grass already over ripe, through which was growing another thick and luxuriant crop, destined to constitute a large part of the hay of the season. And even this latter growth came to maturity, before the rains were over, and an opportunity was furnished for late hay-making. The second crop on well cultivated fields was very large. From the first of August onward, grass grew apace. Pastures became suddenly luxuriant. Fall feed has been more than sufficient for all our wants. And the extraordinary warmth of autumn has continued on into the winter months, On the third of December, at the time of writing this, store cattle, horses and sheep find abundant feed in the pastures and fields, and weather mild enough for their out-door subsistance. And at this date, we know of no dairy stock which has been permanently housed for the winter. It would be difficult to estimate the amount of fodder, grain, roots, etc., which our farmers have saved through this beneficent order of Providence. The stock of hay, inferior and damaged

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as it may be, will undoubtedly be more than sufficient for the wants of the season thus fortunately shortened

The importance and value of the hay-crop induces us to enter into a consideration of the various modes of cutting and curing it. The best grasses known to us are undoubtedly herds-grass and red top. Clover serves as a good introduction to better grasses, on land just laid down—nothing more. There are heavy clay lands in some parts of the county, where red top never appears, or at any rate, never reaches maturity, even if the seed be carefully sown. On the lighter lands it constitutes one of the most useful and beautiful of our grass crops. Herds-grass, or timothy, is however the recognized leading grass; that grass which yields the largest burthen of good hay on well-cultivated lands, and furnishes, when well-cured, the best fodder for our cattle and horses.

It is very important, therefore, that we should ascertain, so far as may be, the best time for cutting and the best mode of curing this valuable grass; so that it may furnish the feeder with the largest amount of nourishment for his animals. We are not now considering the kind of hay which will make the most milk, or is best adapted to calves, colts, and young stock generally, or will be the permanent food of sheep. We desire to learn if possible, that condition of herds-grass hay, which will supply the largest amount of those elements which make animal fibre, fat, bones, and muscle.

We do not think that hay which, when cured, bears a resemblance to "rowen," will do this. We have no doubt that animals fed on hay of this description will thrive well, when lavishly fed upon it. We have no doubt that cattle fed on such hay have a larger reserved capacity for consuming corn and other grain, than when fed on hay of a maturer quality. The capacity of cattle for consuming "rowen" seems to be unlimited. And it is generally understood that it is not a profitable or an economical kind of hay to feed; and that it requires a liberal additional supply of grain when it is used in the process of stall feeding.

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The great object of the feeder should be to have his hay in such condition, as to avoid an excessive amount of grain. The hay that "spreads the best" is the most valuable. A hundred weight of hay which will produce as much fat with a bushel of corn meal, as a hundred weight of hay of different quality will with two bushels, is certainly the more profitable for the farmer, whether he feeds his animals for labor or for fat. This no one will deny. That hay, moreover, which shrinks the least after cutting, and at the same time retains all its nutritive qualities, is the most profitable and desirable, to all who would make the most of their crops.

We think there is a period in the growth of herds-grass, when it reaches its maximum in this respect—when it contains all the elements it is capable of supplying the animal which consumes it. But this is not when it is half grown; when the head is half formed; when it has no well organized fibre to give it strength and consistency. It is not when it is in blossom. For at both these periods it is deficient in starch, and sugar, and gluten, the most important of its nutritive elements; and it abounds with water. It is in fact immature, and is in the condition of an unripe apple or potatoe, or any other plant, or fruit, or root, which is half-grown, and half-organized.

We do not mean to contend that grass should be "ripe" before it is cut; for the change which takes place in the stalk of all grasses which bear seeds or grain, when the seed becomes mature, and fit for reproduction, is such as to deprive them of a large portion of their nutritive elements, and to leave a large preponderance of woody indigestible matter.—The plant has then reached a period when its decay begins, and when its value consists very much in the seed which it has borne.

There is a period, however, when the seed is fully formed, and is yet "in the milk" as it is termed, during which grasses contain more nourishment, including that found in the stalk, leaves, and seeds, than at any other. This is the time when

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we think herds-grass ought to be cut. It has then, "more heart in it,"—to use a common farming expression,—not only is the grass itself more thoroughly organized, but the seed also, which, in well grown herds-grass, is abundant, contains a large amount of nourishment, being equal, in this repect, to grain of any kind, weight for weight. Experience has taught us that grass cut at this period of its growth, and properly cured, makes hay of the highest quality. Cattle that have been fattened, with the smallest expense for grain, have been fed on such hay. We have seen horses, performing constant service, in good, hard, muscular, working, condition, as if supplied with corn, fed on such hay alone.

We are well aware that much of our grass stands too long, especially on large farms, where a great amount of hay is to be cut. This may render it necessary, in some cases, to commence cutting the grass before it is in proper condition. But even in such cases it is not the earliest cut, nor the latest which is the best. It is that, which, when cured, has neither the succulent weakness of rowen, nor the hard and woody fibre of straw; but that which has the firmness, and consistency, and color, and quality, which all men understand, who know by necessary experience and observation, what is the most nutritious and economical hay which they can purchase in the market.

CATTLE AND SHEEP.

The attention of our farmers is turned now more than ever to their cattle. There is an increasing interest in the question, what breed is best adapted to our soil, and in many places great improvements have been made. It begins to be more and more understood that size is not always a test of merit; that quality is better than quantity; and that there is no more mistaken economy than an attempt to feed an animal on pastures unsuited to it. Compact, solid, thrifty oxen, cows whose boney structure does not overbalance their muscular, and which have not a superabundance of offal, sheep which are "heavy

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in proportion to their size," have great attractions to those who cultivate a hard soil, under a cold sky. They are animals which can be profitably fed for work, or for milk; and are the only animals that can be fed here for meat, without a loss.—There are still, however, too many unprofitable animals in the county—animals which make no fair return for the food which they consume. He who produces an early and hardy variety of corn, he who discovers a valuable fruit, he who introduces a desirable vegetable, he who hybridizes grapes successfully, is looked upon as a benefactor to the tillers of the soil. What shall be said of him who introduces the best class of animals to our farms, and lays the foundation of that business by which corn, and fruit, and vegetables, are produced?

The newly awakened interest in sheep is also an encouraging feature in the agriculture of the county. There are already small flocks which are very profitable; and there are indications that sheep-husbandry will, ere long, form an important branch of our farming. The comparative merits of fine and coarse-wooled sheep have been somewhat vigorously discussed among us, especially since the attention of this Society was called to the subject, by a report of a committee on sheep, made in 1862. It may be remembered that the superiority of fine-wooled sheep, as producers of wool, was there set forth: and that it was also claimed for them, that, while they furnished heavy fleeces, they were the best and most economical breed of sheep to feed for mutton. In order to show that the Committee which made that report, are not alone in these opinions, we quote the following passages from "an essay on Fine Wool Sheep Husbandry, read before the New York State Agricultural Society, in February 1862," (since the report was submitted to the Essex Society,) by Hon. Henry S. Randall.—He says, page 155:

"Why not meet a large part of this demand, (for mutton) now suppled from abroad, with our full-blood Merino sheep? Even the epicurism of England has decided that this breed produces prime mutton. Sir Joseph Banks, in a report made

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in 1802, says: 'Experience has demonstrated already, both at Windsor and Weybridge (the royal residence,) that Spanish mutton is of the best quality for a gentleman's table.' Mr. Wilson, the present Professor of Agriculture in the University of Edinburgh, in a recent excellent paper on 'The various breeds of Sheep in Great Britain,' furnished by him to the Royal Agricultural Society's Journal, says: 'They (the Merinos) are hardy, and not more subject to disease than our other breeds;' they thrive well on moderate keep, and may be fed up to 110 to 120 pounds weight at two years old; the mutton is considered to be of very good quality."

The report of Tessier and Hazard, made to the Institute of France, in the year eight of the Republic, shows that the same opinion prevailed even thus early in France. They say: 'The experiments we had formerly made in feeding Spanish sheep have not been fully detailed. It has been undeniably proved that all those animals were fattened, and their flesh was at last as delicate as that of any other breed of sheep.'—Various French writers confirm these views.

It is to be remembered that in England the Merino mutton had to encounter long established and obstinate prejudices.—Its people were accustomed to carcases of a peculiar form, fat laid on in a particular way, and more of it in proportion to the lean meat, than the Merino readily takes on.

On the other hand, the great body of Americans are neither accustomed to, nor do they choose, excessively fat fresh meats of any kind, and particularly mutton. Most of them, after attempting to eat well-cooked new Leicester or Dishley mutton, with two and a half or three inches of outside fat, turn away from it with loathing, or eat only the leaner parts. Yet the English factory operative or farm laborer finds just what he wants in that mutton, because its fat will in soups, etc., convert a large amount of vegetables into more palatable and nutritious food, and then it will go further in imparting the effects of animal food than any other meat.

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The meat of the Merino, when well fattened and properly treated, is juicy, short-grained, high-colored and well flavored. In these particulars American taste adjuges it superior to the meat of the English long-wooled sheep. Though the scarcity and value of full blood Merinos have prevented many of them from appearing in our markets, the grades have always been favorites with the butcher and consumer. The former finds that they weigh well for their apparent size, and get to market in excellent condition. There is not a drove that sweeps from the plains of the North-west that does not exhibit a sprinkling of this blood, and if they are merely grass-fed, the twenty fattest, and least travel-worn sheep in the drove will usually be found those which by a little darker tinge of their wool, and its greater thickness, and "squareness on the ends," betray more Merino blood.

Those people who pay such prices in our cities for South Down lambs in February and March, are not perhaps aware they are paying for grade Merinos."

These facts are being more universally recognized; and some farmers who have, for years, devoted themselves to breeding coarse-wooled sheep, on account of the weight of the carcass, are now substituting the more compact form, and hardy constitution, and heavy fleece, and finer grained mutton of the Merino.

MANURES.

Probably no section of the State supplies itself with manures from so many sources, as do the farmers of Essex county.—The accumulated refuse of our cities, the contents of sand heaps and muck beds, the collections in the farm yard, the marine plants which storms cast upon our shore, and the various concentrated fertilizers are all liberally used. In those towns where the heaviest crops of roots are raised a diligence and care which would astonish even the Japanese farmer, are displayed in collecting fertilizing materials. Notwithstanding all this, there is room for improvement in the methods by

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which manures are manufactured, collected and used. Since the extravagant nitrogen theory of Liebig has exploded, we may be sure that the substantial manures of our farm yards have all the value, which we have been in the habit of attaching to them. And we cannot be too attentive to all the processes of composting and of decomposition, by which green manure is passed safely through the work of putrefaction, and rendered useful to the growing plant. If we will protect the manure of our farm yards, from the wasting influences of sun and rain, we may assure ourselves that we have all that is necessary for the best cultivation of our crops. It furnishes the best pabulum for our corn crop, and is unequalled in the power which it possesses of rendering land peculiarly adapted to the growing of grass. Let every farmer, then, have a cellar or a manure shed, and he may become independent of all artificial stimulants, and may derive from his farm, all those elements which he requires for the best cultivation of land.

CONCLUSION.

We have submitted these views to the Society, with the hope that they may do something towards stimulating agricultural investigation, rather than with the idea that they would throw new light on questions that have been so often discussed before. "Line upon line, precept upon precept; here a little and there a little," is a maxim most important to him who deals with the theory and practice of agriculture. We have omitted much that might properly be referred to, for the want of time and space. How much might be said of drainage, and ploughing, and sowing, and planting, which we have not said! If we have, however, but opened the first page of the book, and have induced farmers to investigate still further for themselves, we shall have done a good work. If we have done anything to rouse the interest of the community in the business of practical agriculture, we shall have done all that can be expected of a report of this nature. We are fully impressed by the agricultural capabilities of the county, and by the ef

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fect which a developement of them to the highest degree, would have upon our people. There is much good farming here which ought to be extended. There is much bad farming which ought to be reformed; for the accomplishment of which, we may bear in mind the words of Pliny, who says:

"The ancients considered him a bad husbandman who buys what his farm can produce to him; a bad master of a family, who does in the day time, what he may do at night, except in the time of a storm; a worse who does on common days, what is lawful on holidays; the worst of all, who on a good day is employed more within doors than in the fields."

GEO. B. LORING, Chairman.

ESSAYS.

The Committee on Essays report:

The only Essay presented for their examination, was one on the culture of the Grape in the open air. They welcome any attempt to promote the culture of this delicious fruit,—applicable to so many purposes, and agreeable to all palates.—Among the blessings bestowed on man by Providence in the fruits of the earth, "the Vine is pre-eminent for its quickness of growth, the great age to which it will live,—its astonishing vegetative power, and its wonderful fertility." Experience has shown that foreign grapes cannot be ripened with any certainty in this climate in the open air; and of our native grapes, few have sufficient merit to induce their cultivation. The Essay brings prominently to notice the very meritorious and successful efforts of Mr. Rogers to hybridize the vine. By hybridizing the best flavored foreign grapes with our best native varie-

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ties he has been enabled to combine the rich flavor of the one with the hardiness of the other. And as the result of his efforts, it will be in the power of every man who owns a cottage or a patch of land to regale himself and his family with this most healthful and agreeable fruit.

"EVERY MAN MAY SIT UNDER HIS OWN VINE."

The suggestions of the essayist in regard to the culture and pruning of the vine seems to us judicious, and harmonize with those of an able Essay on the cultivation of the Grape vine by Clement Hoare, published in 1837, but now almost forgotten. The Committee have agreed in recommending that the writer of this Essay receive the Society's premium of $10.

JAMES H. DUNCAN, Chairman.

ESSAY UPON OPEN AIR GRAPE CULTURE.

BY JOHN M. IVES.

From the exhibitions of hardy grapes this year we begin to have hopes that at no distant period, the culture of this fruit will be an important branch of industry; but a few years since the Isabella was the only out door grape, though only in the most favorable places could it be depended upon to ripen its fruit, but we now have varieties so much earlier, that this kind is being fast superceded by sorts not only sure of ripening in this latitude, but of superior size and quality, approaching the foreign kinds in delicacy and richness of flavor. Within a few years, we have had the Delaware, Concord, Hartford Pro-

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lific, Rebecca, Creveling, and other valuable kinds, all of which possess some qualities to recommend them as superior to the Isabella, the Rebecca, Delaware, and Creveling, as being earlier, and of good quality, although a little tender, and subject to mildew somewhat in foliage, while the Concord, and Hartford Prolific, are among the hardiest in this respect, yet the fruit is not quite equal to some, and has more of the harsh flavor (denominated "foxy") of the wild species. The Adirondac, Wilmington White and Cuyahoga, are new varieties which we have not as yet obtained. Allen Hybrid raised by J. F. Allen of Salem we have never grown, and cannot speak with certainty as to its value as a *hardy* grape, we have seen specimens of the fruit of fine quality resembling to our taste, the White Sweetwater. Some of the cultivators around Boston think well of this variety, it is certainly a fine flavored white grape. The Hartford Prolific although valuable as one of the earliest, and about equal in quality to the Concord, has the fault of dropping its fruit, and the Concord which ripens two or three weeks later, fails to mature its crop in unfavorable seasons. Of all the kinds that have come under our notice for the past four years, we have seen none to equal, taking into consideration all desirable qualities, than the Grapes known as Rogers' Hybrids, raised by E. S. Roger's of Salem, Mass. His experiment in hybridizing has proved and set at rest a subject which has been some time in dispute among horticulturalists, and distinguished botanists, such among the latter is Le Conte; who says, "That although among some families of plants, hybrids occur naturally, or may be formed artificially, yet it is difficult to understand, how this ever can be the case in the genus Vitis, on account of the minuteness of the flower, and the parts of fructification, still we would not however assert that hybridization naturally, or artificially, is absolutely impossible." White of Georgia says "*it is the first time* that this has been done effectually." Mr. Rogers has given to the Country, varieties of hardy grapes, the most valuable of any heretofore known for this latitude, and also for more southern

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ones, like New York and Virginia; some of his varieties, a little too late here, have been pronounced *there*, to be the best hardy grapes ever grown in those parts. These varieties, some forty or more were produced by hybridizing one of our best and earliest wild grape, known as the "Mammoth," belonging to the species (Vitis Labrusca) with two of the earliest of the foreign species (V. Vinifera) known as Black Hamburg, and White Chasselas, and the change from the wild type in the new seedlings is immense, and apparent to the commonest observer; the new varieties having none of the foxy odor, peculiar to the native parent from which the seed was taken, and resembling in size, color, and delicacy of fruit, the foreign, and the berries like this species having the property of not dropping. The few which were crossed with the Chasselas, have much of the character of this sort, not one of the seedling's coming black in color like those raised from fertilizing with the Hamburg.

Mr. R. has again crossed some of his present varieties with the foreign, a few of which have borne fruit; the fruit and foliage of these prove beyond the doubts of the most skeptical, the certainty of raising new grapes by this process. Another fact which we think is very strong evidence, is the character of the blossoms. It is well known to botanists, that all the American species of grapes are what is technically termed diœcious, polygamous; that is, that some vines are *staminate* and never bear, others have perfect blossoms and produce fruit. If we attempt to raise seedlings from our wild grapes, about one half or a large proportion usually prove barren, *never* producing anything but blossoms; any one accustomed to examine these can tell when in flower, the fruiting from the staminate portion, these show large clusters of blossoms but no fruit follows. With the foreign species, it is different; here the male or barren plant is not known, *all* the seedlings from these are fruit bearing vines, and the fact that Mr. Rogers has never had an *un*fruitful plant among upwards of forty varieties which have borne is strong evidence, without any other, of their being hybrids, inheriting

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this quality from the foreign parent. Thus from our wild grape, Mr. R., following the process of Knight of England with pears and cherries, has produced in a short time, varieties, which it might have taken a long course of years to get by the chance method of Van Mons, viz., beginning with the wild variety, and sowing the seed through successive generations, and whose best fruits after all perhaps, were only accidental crosses, made by the bees, and from the pollen, floating in the air, from the many varieties which he had growing and blossoming together; by the latter process many thousand seedlings were raised to produce a few good fruits, while by the other method of hybridizing with a view to certain results, nearly all the seedlings prove superior, and very nearly, with the valuable properties we wish, as is the case with these grapes. Mr. R. knowing what was wanted, chose the wild variety on account of its hardiness and earliness (in preference to the Isabella,) for the mother of the new variety, and for the male parent; the two hardiest of the foreign species, viz., the Black Hamburg and the White Chasselas; and from these two species have come numerous valuable varieties, possessing many of the qualities desired; such as hardiness of vine, earliness and delicacy of fruit. These grapes are sent out by numbers; No. 15 has ripened for four or five years in succession, when many other, much praised kinds, have failed, and this year especially, it has proved fine in many places, and superior to any kind that we know for its fine flavor. We have even heard many say that they preferred this to many of the foreign varieties from under glass, and this is not the only valuable kind among these new seedlings; there are many other varieties, which are thought nearly equal, and a few quite as good. Nos. 1, 3, 4, 9, 14, 28, 30, 33, 41, 43 and 44, and others which we have not as yet seen. The above mentioned sorts are all earlier than the Isabella, and many of them earlier, larger and much superior to the Concord in quality. An intelligent Scotch gardener who has had much experience in the culture of the grape, considers these hybrids to be most

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promising grapes for out door culture we possess, this is also the opinion of one of the best judges and most scientific amateurs in the cultivation of the grape in New York State, he says "that No. 15 as ripened here at Ithaca, has to my taste a resemblance to the Catawba, it is decidedly of that flavor, but milder as a table grape, and about *twice* as large in size of berry as that variety. No. 4 as ripened here this year, is a fine large black grape of sweet and mild flavor, better than the best Isabella, this number reminds me of the Black Hamburg. As the New England varieties improve as to sweetness for two or three years, after their removal here, I shall expect very much from these hybrids." The same testimony has been given from Virginia, Ohio, Illinois and Canada. From this last place I received a paper containing an account of the recent "Fruit Growers Convention" in Canada West. In their report on grapes exhibited, they say of Rogers' No. 15, "Not pulpy, *best* of the new grapes, berry and bunch large." Another cultivator in the same locality, says, "Rogers' No. 15 very hardy, early, fine flavor, large berry, and fine bunch, well shouldered." J. B. Garber of Pennsylvania, (who is said, in the "Germantown Telegraph," to have had more experience in fruiting these hybrids than any other person in the State,) says, "That he has fruited thirteen varieties of these new grapes this season, and that they are one and all superior to nine-tenths of the kinds in common cultivation, vigorous and fine growers, the wood ripening perfectly, and thus far with him, no mildew, rot, or any defect whatever, some were ripe the first week in September, and none ripened later than the Concord, and ALL were fully ripe before either the Isabella or Catawba."

The American grape is now receiving great attention in the vine-growing regions of Europe, especially France, where it is being introduced *with the hope, that it will be free from the disease which attacks and sometimes destroys the European vine.* The cultivation of the grape, particularly in Western New York, is considered a profitable crop. Mr. McKay has realized during many successive years from one thousand to

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twelve hundred dollars from the sale of grapes, grown on one acre of ground.

SOIL, AND MANURING THE VINE.

The best and most natural soil for the grape is a dry porous lime stone. It should be well drained; cold and wet situations are unfavorable for the vine. In manuring for the grape we should *never* use animal manure *un*composted,—such was the testimony at the National Fruit Growers' Convention. The mineral manures, in consequence of their ingredients, have the most effect on the quality of the fruit, while animal matter encourages the formation of wood too fast, and makes the vine tender and subject to disease and, we think, mildew. The best dressing we find, is bone and oyster shell flour, manufactured *without* burning. Bone dust contains the most nourishing elements, which, with wood-ashes, and a good surface soil, well covered in the fall with dry leaves, are nearly all the materials necessary for the vine; the finer the dust of the bone, the more immediately active it becomes. Bones are said to contain a greater amount of phosphoric acid than from any other one substance, hence it has been beautifully expressed that "there can be no civilization without population, no population without food, and no food without phosphoric acid; and that the march of civilization has followed the direction or supply of this material." Of all fruits none are more impatient of wet than the grape, a dry situation is absolutely essential; therefore if the soil be at all retentive, thorough draining is necessary.

GRAFTING THE VINE.

This is easily performed in the following manner. The soil in the spring is removed from the base of the stock below the surface. The vine is then sawed off and cut smoothly with a

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sharp knife. A cleft is then made in the top of the stock two or three inches deep, and the scion inserted containing two or three eyes. It is then covered with grafting wax, or clay, and the surrounding earth drawn up in a mound. The grafts which you intend to use in the spring should be cut from the vine in the fall previous and buried either in the earth on a dry place, or put into sand in a cool and dry cellar. It is better in the spring to wait until the stock upon which you intend to set your grafts should be in some state of forwardness, say nearly or quite in leaf before you set the scions.

LAYERING THE GRAPE.

This is the easiest and most successful mode of multiplying the grape vine; it is simply to dig a trench near your vine, six inches wide, and three to four inches deep, and then take well ripened shoots growing near the base of the vine; bend these carefully and peg them down with the end of the shoot above ground. This must be done early in the spring. These will make good plants in one season for setting.

PRUNING AND TRAINING.

It is difficult to give directions on paper for pruning vines, as there are so many cases requiring different management, but we will try to give a few general ones, that may be of benefit, and which if properly followed will produce finer fruit, and more regular crops, than if no pruning at all had been practised. In the first place, we will suppose a young vine, one or two years old, about to be planted; it should be cut back, if not previously done (if it is in the spring) to two buds, only one of which should be allowed to grow through the summer; the other rubbed out after having pushed two or three inches, it having been kept in case of accident to the first. The growing shoot should be kept tied to the stake or trellis, and if the

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laterals are allowed to grow this season, they will do no harm, but rather increase the strength of the root. These laterals are side-shoots, springing from the base of the leaf on the same years' wood; and after the vine gets established, it is customary to keep them nipped back to one bud, The vine has now arrived at the end of the first season's growth, and if it is strong and thrifty, having grown five or six feet, it should be cut back to three buds; but if it appears weakly, and has made little growth, it should be cut back to two, and treated the following summer the same as the first; it should now be covered for the winter. In the spring, (if it was a strong vine, when cut back the preceding fall,) two shoots should now be trained up, keeping the laterals before mentioned nipped in to one bud; the other or third bud after having grown a few inches, should be rubbed out, as it was merely reserved in case of accident to either of the others. After the two shoots have grown their full length, and the leaves are off in the fall, they should be cut back, according to their strength, to four or six feet, each one being brought down horizontally within one foot or eighteen inches of the ground, and tied down to the trellis, or if intended to be protected in winter, this should be done the following spring.

When spring arrives, and the vines are uncovered, the two shoots should then be tied one each way, horizontally along the lower rail of the trellis; these are called the arms of the vine; upright shoots should be trained from them, beginning at the trunk or stem of the vine, and about nine inches distant each side, this will leave the upright or perpendicular shoots eighteen inches apart, which is near enough to allow plenty of light to the leaves, and prevent them from being crowded.—The number of uprights to be taken this season will of course depend on the strength of the vine, but if possible the ones next the trunk or stem should be secured, and if the others push vigorously, train them up also, rubbing out the intermediate ones when nearer than eighteen inches; no fruit, or only a few berries, enough to test a new sort should be allowed to

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grow on them this year, as it will injure the fruitfulness of the vine for coming seasons. At the fall pruning, these uprights should be cut back, the strongest to four or five fieet, and the weak ones, to one or two buds, from which to lead new uprights; the shoot at the end of the arms can be pruned if strong, to four or five feet, as from this the vine is to be extended, and new uprights to be taken, till we arrive at the end of the space to be covered; after this the vine is protected for the winter. The following spring—the fourth from the setting of the vine,—it will be old enough to bear fruit from the upright canes; and this leads us to a question, whether the vine this summer will need any pruning, some thinking that summer pruning is injurious, and that the removal of the shoots or leaves, tends to spoil the flavor of the fruit. This is right in theory, for if we take off the leaves of a vine or tree, or if they are destroyed by mildew, we know the fruit will be worthless, but notwithstanding, we would recommend judicious summer pruning as absolutely necessary where we have not space for the vine to grow naturally; as for instance, over some large tree, where it has plenty of room to extend itself, and get the full benefit of sun and air; and we think those who advocate letting a vine grow in summer without pruning, on a small trellis which is intended to be well filled with fruit from top to bottom, would find in practiee, that their theory although correct, could not be well followed with profit; and therefore we would recommend summer pruning properly performed, as being a very important part of the art of cultivating the grape with success; and this now carries us back to our vine, which had been regularly pruned every year in the fall, but has now arrived to the state, when it is about to need summer pruning. The uprights, if strong, will now begin to push shoots from the buds along their side, each of these shoots will probably have from one to four bunches of fruit, but we should not allow more than two upon the stronger and but one on the more feeble shoots to remain, or if we take off from every other, or alternate shoot, the vine will be the better for it.

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As the season advances, we shall now notice that the shoots near the top of the uprights push much stronger than those below, and should be pinched off, leaving two or three leaves beyond the bunch of fruit, or blossom. Those at the lower part can be left to grow a few weeks longer, thereby gaining strength; after this they can be cut back to a few leaves—say three beyond the fruit. Now, if the vine had been allowed to take its natural course, we begin to see the difficulty;—two or three of the upper buds, on the uprights, would have taken the whole strength of the vine from the lower ones, and grown perhaps ten or twenty feet, and which we should have been obliged again to cut off; but by the other mode, the sap was equalized over the whole vine, each shoot getting its fair sup ply, and the lower ones consequently stronger, and with better and larger foliage to feed its fruit, than if the vine had taken its natural course. The pruning of large established vines should be done soon after the fall of the leaf, previous to laying them down. By pruning at this period (say November,) the sap collected by the roots stimulates the buds, which will cause them to push earlier in the following spring—a matter of importance where the Summers are short.

The only course to pursue with old vines that have been neglected, is to choose branches containing the best and ripest wood, cutting back all side shoots to one or two buds, and leaving three or four feet, more or less, of the new wood upon the end of the branch; these branches, after being shortened and trimmed, must now be laid along the trellis, eighteen or twenty inches apart. If there are more branches than is necessary, they must be cut away.

MILDEW OF THE GRAPE.

The oidium of the vine is supposed to be a variety of mildew which generally attacks the under surface of the leaf, and is presumed to follow after rains or a continuance of cold, damp days, especially if these conditions follow a period of

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dry, hot weather. The fact that grape vines growing in sheltered positions, and the occasional occurrence of vines growing upon trees, retaining their health, while branches near by will be mildewed, seems to show that the foliage of the tree protects them, and is some evidence that the cause is atmospheric. We are inclined to think that shelter, a well drained soil, and the avoiding of strong animal manure, will do much to prevent this evil.

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Dr. William Sutton, Treasurer, in account with the Essex Agricultural Society. Cr.

1862.			1862.			
October.	To balance of former account	$539 53	October.	By amount awarded by the Trustees in 1862-3		$818 00
	To receipts of Exhibition in 1862	236 80		By Expense account as follows:		
	To State bounty	600 00		Exhibition in 1862	315 26	
	To Bank Dividends in October	201 75		Printing	426 17	
	To Treadwell Farm	23 07		Secretary's Salary	100 00	
December.	To New Members	42 00		Freight, Postage, &c	35 80	
Jan. 8, 1863.	To Essex Railroad Bonds interest	54 20		Sundries	7 80	
April.	To Bank Dividends	212 00		Treadwell Farm	224 05	
July 10,	To Essex Railroad Bonds interest	20 37	1863.	Colman Library	25 68	1,134 76
October.	To Unclaimed Premiums	50 50	Oct.	By balance to new account		27 46
		$1,980 22				$1,980 22

FUNDS BELONGING TO THE SOCIETY.

16 shares	Warren Bank, cost	$1,595 40	Amount brought up	$7,665 47
12 "	Exchange Bank, par	800 00	Deduct amount due Library account	1 00
22 "	Commercial Bank, cost	1,471 66		7,664 77
7 "	Mercantile Bank, par	700 00		
6 "	Merchants Bank, par	300 00	Funds on hand in 1862	8,151 16
5 "	Village Bank, par	375 00		
3 "	Salem Bank, par	225 00	Difference in 1863	486 39
15 "	Danvers Bank, cost	1,471 25	The balance this year against the Farm is $200 98, which, with the balance of last year will make a nett charge against the Farm of	1,288 20
Essex Railroad Bonds, par		700 00		
Cash on hand as above		24 46		
SALEM, November 10, 1863.		$7,665 77	E. E.	WILLIAM SUTTON, Treasurer.

The foregoing account has been examined on the Dr. and Cr. side of the same with the vouchers for all the disbursements, and the Auditors are satisfied that said account is correct, and truly represents the financial condition of the Society.

ASAHEL HUNTINGTON,
WILLIAM H. FOSTER,
CHARLES KIMBALL, } AUDITORS.

SALEM, November 14, 1863.

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OFFICERS OF THE SOCIETY,

FOR 1863-64.

PRESIDENT.

JOSEPH HOW, of Methuen.

VICE PRESIDENTS.

LEWIS ALLEN, of South Danvers.
JEREMIAH COLMAN, of Newburyport.
DAVID CHOATE, of Essex.
ROYAL A. MERRIAM, of Topsfield.

TREASURER.

WILLIAM SUTTON, of South Danvers.

SECRETARY.

CHARLES P. PRESTON, of Danvers.

HONORARY TRUSTEES.

JAMES H. DUNCAN, of Haverhill.
JOHN W. PROCTOR, of South Danvers.
RICHARD S. FAY, of Lynn.
DANIEL ADAMS, of Newbury.
ALLEN W. DODGE, of Hamilton.

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TRUSTEES.

Hazen Ayer, South Danvers,
Jonathan Berry, Middleton,
Robert Brookhouse, Jr., Salem,
William Cogswell, Bradford,
Richard Dole, Georgetown,
Francis Dodge, Danvers,
Thos. P. Gentlee, Manchester,
John M. Ives, Salem,
John B. Jenkins, Andover,
John Keeley, Haverhill,
Joseph Kittredge, N. Andover,
Cyrus W. Lord, Beverly,
I. Osgood Loring, N. Andover,
Lambert Maynard, Bradford,
Samuel A. Merrill, Salem,
Joseph Newell, W. Newbury,
Josiah Newhall, Lynnfield,
J. L. Newhall, Newburyport,
William Osborn, Lynn,
Edward H. Pearce, Gloucester,
William R. Putnam, Danvers,
Jona. F. Phillips, Swampscot,
Charles Rogers, Newbury,
Joseph Ross, Ipswich,
Paul Titcomb, Newbury,
E. S. Williams, Newburyport,
Enoch Wood, Boxford,
Benj. P. Ware, Marblehead,
John Whittredge, Hamilton.

The Trustees whose term of service will expire on the day of the annual meeting of the Society in 1864, are:

Joseph Ross,
I. Osgood Loring,
Edward H. Pearce,
William Osborne,
William R. Putnam,
Cyrus W. Lord,
Joseph Newell,
William Cogswell,
Jonathan F. Phillips,
Charles Rogers.

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NEW MEMBERS—1863.

Sherman Nelson, Georgetown,
T. Payson Milton, Rowley,
Geo. C. Rogers, W. Newbury,
John Preston, Georgetown,
I. H. Boardman, Newburyport,
John G. Little, Newburyport,
Calvin E. Poore, W. Newbury,
Geo. H. Poore, W. Newbury,
Charles W. Hatch, Haverhill,
Elijah E. Lummus, Beverly,
John A. Ellis, Bradford,
William G. Pingree, Wenham,
George Foster, Andover,
Amos G. Dole, Georgetown,
Elbridge Merrill, W. Newbury,
Rufus A. Dodge, Wenham,
Thomas Appleton, Marblehead,
E. F. Page, Lawrence,
William P. Fay, Lynn,
David Gray, Andover,
D. T. Morrison, Methuen,
C. L. Tozier, Methuen,
George E. Carlton, Methuen,
B. A. Follansbee, W. Newbury,
Matthew Poor, No. Andover,
William J. Dale, N. Andover,
W. A. Currier, Haverhill,
Edward C. Upton, Andover,
Charles C. Blunt, Andover,
J. Milton Blunt, Andover,
Wm. H. Kimball, Andover,
Eleazer Lake, Topsfield,
Andrew Curtis, So. Danvers,
S. L. Ridgway, W, Newbury,
N. W. Moody, Newbury,
James Nason, No. Andover,
Jas. H. Reynolds, N. Andover,
Moses Foster, Jr., Andover,
P. Newhall, Newburyport,
J. L. Newhall jr., Newburyport,
Wm. C. Chapin, Lawrence,
William Sleeper, Methuen.

☞ Any citizen in the County may become a member by paying the sum of three dollars to increase the permanent funds of the Society, and he will receive a certificate of his membership from the Secretary. No fines or assessments are ever imposed. Members are entitled to the free use of the Library and a copy of the Transactions each year. All ordained ministers of the gospel residing in the County, and editors of newspapers, published therein, are entitled to the privi leges of the Library.

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LIST OF PREMIUMS, &C.

FAT CATTLE.

C. P. Preston, Danvers, 1st premium,	$10 00
Jedediah H. Barker, North Andover, 2d premium,	8 00
Samuel Moody, Jr., West Newbury, 3d premium,	5 00

BULLS.

J. Longfellow, Byfield, Jersey, 1st premium,	10 00
Asa M. Bodwell, Methuen, Grade, 1st premium,	5 00
C. P. & O. Bailey, North Andover, Grade, 2d premium,	3 00
Albert B. Gordon, Methuen, Grade, 3d premium, Flint's Book on the Dairy.	

MILCH COWS.

J. Longfellow, Newbury, 1st premium,	10 00
Jacob F. Jewett, Georgetown, 2d prem., Harris' Insects.	
George H. Chandler, Andover, 3d premium,	2 00

HEIFERS.

J. Longfellow, Byfield, 3 years old, 1st premium,	7 00
Warren Mears, Andover, 3 " " 2d "	6 00
Peter Temple, " 2 " " 1st "	5 00

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Samuel Tucker, Andover, 2 years old, 2d premium, 4 00
C. C. Blunt, " " " 3d " Flint's Book on Grasses.
J. Longfellow, Byfield, yearlings, 1st premium, 4 00
E. G. Berry, Danvers, " 2d " 3 00
D. S. Caldwell, Byfield, " 3d " Flint's Book on Grasses.

CALVES.

B. H. Farnum, North Andover, 1st premium, 5 00
Daniel Carlton, " " 2d " 3 00
Charles Cummings, Andover, 3d " Flint's Book on Grasses.

WORKING OXEN.

Joel Wilkins, Danvers, Oxen over 3000 lbs., 1st prem., 10 00
Joseph Goodrich, W. Newbury, Oxen over 3000 lbs., 2d premium, 8 00
Moses H. Poor, W. Newbury, Oxen under 3000 lbs., 1st premium, 10 00
Mark H. Hill, Byfield, Oxen under 3000 lbs., 2d prem., 8 00

STEERS.

C. W. Hatch, Haverhill, 3 years old, 2d premium, 5 00
Chas. Ingalls, N. Andover, 2 " " 1st " 5 00
J. B. Locke, Andover, 2 " " 2d " 4 00

STALLIONS.

Loring P. Dempsey, Danvers, stallion over 4 years old, 1st premium, 10 00
D. H. Patterson, Methuen, stallion under 3 years old, 1st premium, 7 00

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FARM AND DRAFT HORSES.

William Peters, No. Andover, 1st premium,		8 00
Samuel Foster, " " 2d "		6 00

COLTS.

James Nason, No. Andover, 4 years old, 1st premium,		7 00
Joseph Coffin, Newbury, 4 " " 2d "		5 00
C. C. Blunt, Andover, 3 " " 1st "		6 00
L. F. Carter, Georgetown, 3 " " 2d "		4 00
Abiel Wilson, No. Andover, 2 " " 1st "		5 00
George B. Martin, Danvers, 2 " " 2d "		3 00
Nath'l Gage, No. Andover, yearling, 1st "		4 00
Joshua Hatch Haverhill, " 2d "		2 00

SWINE.

Byron Goodell, South Danvers, Mackie boar, 1st prem.,	5 00
James H. Reynolds, North Andover, Boar, 2d premium,	3 00
Oliver P. Killam, Boxford, Breeding sow, 1st premium,	5 00
William Foster, North Andover, do., 2d premium,	3 00
James H. Reynolds, North Andover, weaned pigs, 1st premium,	5 00
Chas. O. Cummings, Andover, do., 2d premium,	3 00

SHEEP — COARSE WOOLED.

Chas. Corliss, Haverhill, flock of Cotswold sheep, prem.,	5 00
D. H. Brickett, Haverhill, Cotswold buck, premium,	5 00
I. W. Andrews, Boxford, South Down lambs, premium, Harris's Insects.	

SHEEP — FINE WOOLED.

Samuel Moody, Jr., West Newbury, Merino buck, prem.,	5 00

PLOUGHING — DOUBLE TEAMS.

J. L. Farnham & A. P. Fuller, No. Andover, 1st prem.,	10 00

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Jacob Farnham, North Andover,	2d premium,	9 00
J. & D. L. Goodrich, West Newbury,	3d "	8 00
J. L. Newhall, Newburyport,	4th "	7 00
M. F. Hill, Byfield,	5th "	6 00
M. H. Poor, West Newbury,	6th "	5 00

PLOUGHING — SINGLE TEAMS.

Wm. R. Cole, Boxford,	1st premium,	7 00
Henry Hill, North Andover,	2d "	6 00
Richard T. Jaques, Newbury,	3d "	5 00

PLOUGHING — HORSES.

Samuel Foster & A. P. Fuller, No. Andover,	1st prem.,	8 00
Moody S. Dole, Georgetown,	2d "	6 00
J. B. Jenkins, Andover,	3d "	5 00

FARM IMPLEMENTS.

S. A. Merrill, Salem, Buckeye Mower,	gratuity,	5 00
D. S. Caldwell, Newbury, Farmers' do.,	"	5 00
David Gray, Andover, hand cider mill,	"	2 00
Amos Poor, W. Newbury, horse pitch fork,	"	1 00
J. S. Morse, Georgetown, Corn sheller,	"	1 00
Henry Waterman, Haverhill, Water drawer,	"	2 00
Whittemore, Belcher & Co., Boston, Vegetable cutter, 2 00; Lever cutter, 1 00; and Corn Sheller, 1 00,		4 00

BUTTER.

Sarah L. Ridgway, West Newbury,	1st premium,	8 00
Dean Holt, Andover,	2d "	6 00
Mrs. Farnham Stiles, Middleton,	3d " Harris' Insects.	

CHEESE.

N. W. Moody, Newbury,	1st premium,	8 00
Daniel Silloway, West Newbury,	2d "	6 00

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GRAIN CROPS — INCLUDING FLAX.

Elisha G. Hyde, Danvers, Flax crop, 1st premium, 10 00

IMPROVING WASTE LANDS.

William Foster, North Andover, 2d premium, 10 00

ROOT CROPS.

J. J. H. Gregory, Marblehead, Squash crop, 1st prem., 8 00

EXPERIMENTS ON MANURES.

Benjamin P. Ware, Marblehead, 3d premium, 15 00

ESSAYS.

John M. Ives, Salem, Essay on Grape Culture, 1st prem., 10 00

Awarded by the Committee on			Poultry,	15 00
"	"	"	Vegetables,	28 00
"	"	"	Fruits, &c.,	77 00
"	"	"	Flowers,	18 50
"	"	"	Articles from Leather,	14 00
"	"	"	Counterpanes, Rugs, &c.,	25 75
"	"	"	Fancy Articles, &c.,	37 25
"	"	"	Bread, &c.,	7 75
Total,				$652 25

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RECAPITULATION.

FARMS, &c.

Amount awarded to	Improving Waste Lands,	$10 00	
" "	Experiment on Manures,	15 00	
" "	Essay,	10 00	
" "	Ploughing,	82 00	
" "	Farm Implements,	20 00	
			$137 00

FARM STOCK.

Amount awarded to	Fat Cattle,	$23 00	
" "	Bulls,	18 00	
" "	Milch Cows,	12 00	
" "	Heifers,	29 00	
" "	Calves,	8 00	
" "	Working Oxen,	36 00	
" "	Steers,	14 00	
" "	Stallions,	17 00	
" "	Farm and Draft Horses,	14 00	
" "	Colts,	36 00	
" "	Swine,	24 00	
" "	Sheep,	15 00	
" "	Poultry,	15 00	
			$261 00

FARM PRODUCTS.

Amount awarded to	Flax Crop,	$10 00	
" "	Squashes,	8 00	
" "	Vegetables,	28 00	
" "	Fruits, etc.,	77 00	
" "	Flowers,	18 50	
" "	Butter and Cheese,	28 00	
" "	Bread and Honey,	7 75	
" "	All other Objects,	77 00	
			$254 25
	Total,		$652 25

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CONSTITUTION

—— OF THE ——

ESSEX AGRICULTURAL SOCIETY.

ARTICLE I. There shall be a President, four Vice Presidents, a Secretary and a Treasurer, who shall be Trustees, *ex officio:* in addition to these, thirty (originally twelve) other Trustees shall be chosen from the members at large, all of whom shall continue in office until others are elected in their stead.

ART. II. There shall be an Annual Meeting of the Society, at such time as the Trustees shall determine; at which all officers shall be elected. Twenty members at least shall be necessary to constitute a quorum for the transaction of business.

ART. III. If at any meeting of the Society, or the Trustees, the President and Vice Presidents shall be absent, the members present may appoint one from among them to preside at such meeting.

ART. IV. The President, or, in case of his absence, either of the Vice Presidents, with the advice of the Trustees, may call a special meeting of the Society; or whenever a written application, with the reasons assigned therefor, shall be made

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by any twelve members of the Society, to the President and Trustees, they shall call such meeting.

ART. V. The meetings of the Trustees shall be held at such time and place as they shall from time to time agree upon; seven of whom with the presiding officer shall make a quorum.

ART. VI. The Trustees shall regulate all the concerns of the Society, during the intervals of its meetings; propose such objects of improvement to the attention of the public, publish such communications, and offer premiums in such form and value as they shall think proper, (provided the premiums offered do not exceed the funds of the Society;) and shall lay before the Society at each of its meetings, a statement of their proceedings and of the communications made to them.

ART. VII. The Secretary shall take minutes of all the votes and proceedings of the Society and of the Trustees, and enter them in separate books; and shall record all such communications as the Trustees shall direct. He shall write and answer all letters relating to the business of the Society.

ART. VIII. The Treasurer shall receive all moneys due or payable to the Society, and all donations that may be made to it; for which he shall give duplicate receipts, one of which shall be lodged with the Secretary, who shall make a fair record thereof. The Treasurer shall from time to time pay out such moneys as he shall have orders for from the Trustees; and shall annually, and whenever thereto required, render a fair account of all his receipts and payments to the Society or a committee thereof. He shall give bonds for the faithful discharge of his duty, in such sum as the Trustees shall direct, and with such sureties.

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ART. IX. A committee shall be appointed annually by the Trustees to audit the Treasurer's accounts, who shall report to the Society; and the same being accepted shall be entered by the Secretary in his books.

ART. X. In case of the death, resignation, incapacity, or removal out of the county of the Secretary or of the Treasurer, the Trustees shall take charge of the official books, papers, and other effects, belonging to the office that may be vacated, and give receipts for the same; which books, papers, etc., they may deliver to some person whom they may appoint to fill the office until the next meeting of the Society, at which time there shall be a new choice.

ART. XI. Any citizen of the county may become a member of the Society, by paying the sum of THREE DOLLARS to increase the permanent fund of the institution.

ART. XII. A Committee shall be raised from time to time to solicit and receive subscriptions for raising a fund for encouraging the noblest of pursuits, the Agriculture of our country. The same to be sacredly appropriated to that purpose.

ART. XIII. All ordained ministers of the Gospel who reside within the county, shall be admitted honorary members of the Society.

ART. XIV. In addition to the usual number of Trustees annually elected, the past Presidents of the Society shall be honorary members of the Board of Trustees.

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AMENDMENTS TO THE CONSTITUTION.

ADOPTED SEPT. 29th, 1863.

ARTICLE I. The officers of the Society shall consist of a President, four Vice Presidents, a Treasurer, Secretary, and thirty Trustees.

ART. II. A Committee of one from each city and town in the county, represented in the Society, shall be appointed at each annual meeting, by nomination from the floor, to report a list of officers, (with the exception of Treasurer,) at the next succeeding annual meeting, which report shall be acted on, and the officers elected at said meeting by the ballots of the members present.

ART. III. The Treasurer shall be elected annually by the Trustees, at their meeting in November.

ART. IV. The Committee on nomination shall hold its meeting prior to the first day of July each year; and its report shall be immediately placed in the hands of the Secretary, for the examination of any member of the Society; and the Secretary shall cause ballots to be prepared in conformity with said report, for the use of the members, and presented at the annual meeting.

ART. V. The first election under these amendments to be had at the annual meeting in 1864, and they shall only apply to the Trustees so fast as they go out of office under the present tenure of election.

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LIBRARY.

The LIBRARY is established at the Plummer Hall, Essex Street, Salem, where Members can obtain Books under the following

REGULATIONS:

1. Each member shall be entitled to take from the Library TWO VOLUMES, on signing a receipt for the same, and agreeing to be accountable therefor.

2. No member shall keep any book more than two weeks, after being notified (by the Librarian) that the same is wanted by another member.

3. All books belonging to the Library shall be returned on or before the 15th of November, in each year; that the same may be examined and the condition of the Library reported to the Trustees.

4. Any member who shall neglect or refuse to conform to these Regulations, shall thereby forfeit the privilege of taking books from the Library.

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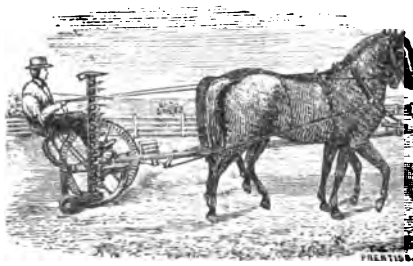

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TRANSACTIONS

OF THE

Essex Agricultural Society,

FOR THE YEAR

1864.

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TRANSACTIONS

OF THE

Essex Agricultural Society,

(MASSACHUSETTS,)

FOR THE YEAR

1864.

PUBLISHED BY ORDER OF THE SOCIETY, DECEMBER, 1864.

SOUTH DANVERS:
PRINTED BY CHARLES D. HOWARD,
ALLEN'S BUILDING,
1864.

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1860, Aug. 31.
Gift of
Henry Cheatland, M.D.
of Salem.
(H. C. 1832.)

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ADDRESS

BY HON. DARWIN E. WARE, OF MARBLEHEAD.

Mr. President and Gentlemen of the Essex Agricultural Society:—

We have assembled to celebrate in the county of Essex the annual fair and festival of its farmers. The season is felicitous. The delightful coolness of the morning and evening hours, the genial warm-hearted noons, the clear and crystalline air, in which the heavens seem higher, the pure sky bluer, the fleecy clouds whiter, and the radiance of the night more silvery than their wont, are grateful and exhilerating after the sultry heats of summer. The wistful, anxious days are ended. The perils of the germinating seed and the tender plant are over. The crop has passed beyond the power of the worm, the insect and the drought, and now lies safely mellowing for the harvest. Upon the foliage of the forests glow here and there the streaks of many-colored light, that soon will blaze with golden and crimson splendors in the sunset of the declining year. They herald the approaching hour of thanksgiving, when the farmer rests from his labors.

The occasion is one of universal interest. When the farmers rejoice, let all men make a holiday. The least thoughtful perceives that all alike are indebted to him who grows the crop

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for the sustenance of their daily lives. The more reflecting, to whom the present brings up the past from which it came, as the sea-shell vibrates to the listening ear with the roar of its far-off ocean-home, passes in thought from the farmer's heads in the enclosures of the fair-ground back on the line of the centuries, over the slow migrations from the East upon which these faithful animals have been the indispensable companions and servants of our race, and finds in the associations of the day, the spirit of a hoar antiquity. Cattle of their kin went with Israelites through the divided waters. They trod the threshing-floors of Judea. They were the flocks the shepherds tended, who saw the risen star of Bethlehem.

It is not, however, so generally considered that agriculture, from the necessity of fixed habitations to which it gives rise, is the foundation of our civilization. The permanent home which agriculture establishes, marks the civilized man. With this comes the stable social order, the civil polity, the sentiment of country, the record of history, the gathering accumulations of progress by successive generations, and the durable architecture of religion and the State. No roving race could build the Pyramids or the Parthenon. The ancient Greeks habitually contrasting their condition with that of the wandering Scythians of the North, well knew the ground of their pre-eminence, and venerated Demeter, the divine genius of Agriculture, as the founder of civilization. What wonder, then, that on the days of her high festival, a people proud of their beloved Athens, the sculptured city of ancient Grecian art, and filled with the patriotism that fought at Marathon, should with the greatest fervor of devotion, throng the precincts of her temple, and with primal rites of sacrifice and stately pomp of solemn ceremonies, honor her who was the mother of their pride and joy!

This lofty plane of life the race has never left. And here to-day, in the new world of the West, in the nineteenth century of our Lord, beneath a roof dedicated to Christian worship, and mindful of our common country, we render hearty

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thanks to the only living and true God, for the grand old art upon which the towering fabric of our social being enduringly rests.

But agriculture is not the only art of civilized society. Perhaps, indeed, at this stage of human advancement, it is not to be considered as the art that gives to our most modern life its distinguishing characteristics. There are arts upon which even agriculture greatly relies—the arts of mechanical and manufacturing industry. The farmers of Essex are met at Lawrence, one of the principal and busiest centres of this industry in our county. I am sure I interpret their feelings rightly, when I acknowledge the generous, social and official hospitality which has been extended to them. Permit me in most of the observations I shall present to you, to prolong the courtesy of this acknowledgment, by considering in some of its phases the dependence of agriculture upon the arts to which this city is devoted. In suggesting the dependence of agriculture, let me not seem to derogate from its just praise. On the contrary, the highest dignity is claimed for it, in the assertion of its greatest dependence. The place of loftiest elevation is dependant upon all below that sustains it. Agriculture is the highest art, only by virtue of its power of making all the other arts and industries subservient to itself. "The glorious privilege of being independent" of which the poet sings, is a moral not a social independence. Let the farmer rejoice in this privilege, and in the many circumstances of his life by which the virtue also is nourished. The philosophy, however, that claims for the farmer's vocation, and as a ground of especial congratulation, that it makes him independent of society, and the aid of his fellow men engaged in other employments, is based upon a mistake of fact, and an erroneous conception of the principles of human progress. What can be more unfounded in fact? The farmer contracts with the carpenter and mason for his house and barn, he buys his furniture, clothing, meat, flour, implements, frequently his bread, butter, cheese and grain, and from the islands of the Pacific material is

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brought in ships to fertilize his lands. Probably there is not a farmer in Massachusetts who could keep himself alive by farming on his present system, without drawing upon external resources. It is with the farmer as with other classes of men, his advancement in his vocation is proportionate to the extent he is aided by other employments. The advancement of society is always marked by increasingly diversified mutuality of social dependence. This is the law of progress. It is but the manifestation in the larger relations of life, of the principle of the division of labor, that in proportion as men become civilized, their pursuits should be diversified. The traditional ascription to the farmer of a peculiar social independence is derived from a state of society existing in Massachusetts within the recollection of persons here present, when the wool and flax grown by him were spun and woven into garments by his household, and the crops were mainly consumed on the farm upon which they were raised. But independence like this is the independence of an undeveloped social life, one that is still found, though in a ruder form in the log cabins upon our Western frontier, one that increases as man departs from civilization, and reaches its extreme limit in the American Indian and the African Hottentot. The higher the organization of social life, the more each works for all, and all for each, and in so doing, each works most efficiently for himself; the deeper and tenderer too, becomes the sentiment of a common humanity that pervades all classes.

It was agriculture that established the fixed condition of life and the possibility of the minute division and distribution of employments. But mechanical and manufacturing industry, when thus established as distinct departments of labor, reacts at once upon agriculture and gives it a new and rapid development. It creates the demand for a surplus of food to sustain the mechanic who no longer supplies himself. As the proportion of society devoted to agriculture diminishes, its efficiency must be strengthened. From

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that surplus of food beyond his own wants which he raises for the new industry, he improves his own condition, and increases the productiveness of his own labor by better implements. He becomes able to devote himself exclusively to the raising of crops, and leaves to the mechanic and manufacturer to do for him, what they are able to do with greater skill, and at less cost. The progress of agriculture, until within a short period of time, has been the effect almost exclusively of improved implements and, consequently, has directly depended upon the progress of mechanical art. Until the mechanic has fashioned the tools with which the farmer can clear of its stubborn and luxuriant growths, the soil best fitted for him, the mould of the valley and the plain, he is compelled to work on the poorest land, because least obstructed by vegetation. The development of the capabilities of the soil by culture at increasing depths, is measured by the difference between the sharpened stick of the farmer drawn through the earth and leaving a shallow scratch one or two inches deep, and the iron plough of the mechanic exhibited here to-day, which gouges a furrow to the depth of eight inches or stirs to the depth of fifteen inches, the subsoil. A deeper culture is equal to a larger extension of arable surface. Under the effects of such mechanical improvements, the globe of agriculture dilates with multiplied dimensions. From the sickle to the reaping and mowing machine, from the trampling oxen and the flail to the threshing machine, from the unaided palm of the sower to the drilling machine, from the slow-picking fingers of the slave to the Cotton-gin, from the hand-hoe to the horse-hoe and hoeing machine, from the hand-rake to the horse-rake, from the basket borne upon the head, or the back of an animal, or the market-wagon, to the railroad train drawn by the locomotive engine, we have similar gradations of mechanical progress followed by the enhanced productiveness of the farmer's labor. But for these improved implements, most of which, in their American manufacture, supply a world-wide demand, the crops of Europe and America could not be planted, raised, gathered

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or distributed, and their populations must suffer and perish for lack of food. The last census in a single fact represents in its enormous magnitude the accumulated contribution which mechanical art makes to the resources of American agriculture. The tables of the last census prove that in the ten years over which its reckoning extends, an addition was made to the improved land of the country of fifty million acres. The whole improved land of the United States amounts to one hundred and sixty-three million acres. In the ten years from 1850 to 1860 agriculture subdued to itself an extent of territory very nearly one-half as large as that of the whole improved land that had resulted from the farming of the country since its first settlement.

Agriculture and the farmer have received not only these advantages, but they have shared the benefits of the general movement which has attended the progress of the mechanical arts, and improved the condition of society. The mechanic and the manufactures have won the first great triumphs under that leader of the race who raised the standard of dominion over nature, as the rightful realm of man. The spoils they win, however, are divided with all. They cannot contrive a mode by which the enhanced productiveness of their industry, shall not redound to the common weal. The million man-power of machinery can be wielded only for mankind. No single class can appropriate its capacity for human aggrandizement. No system of caste, or serfdom, or slavery can make sycophants of steam or electricity. They acknowledge no sovereignty but that of the people—the sovereignty of man. The engines of mechanical force are the great democratizers of states. What makes Massachusetts so pre-eminently a democratic commonwealth? It is the fact, that a social power produced by mechanical art, and equivalent to a hundred million men, is distributed among the million and a fifth of her actual population, and diffuses through the whole mass, the inspiration of a larger personality, and a more aspiring manhood. The development of her new industries, and the revival that

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stirred the hearts of her people so deeply, and re-established in her institutions on a firmer basis the principle of universal education, were contemporaneous, and under the auspices of the same public men.

The social power of mechanical and manufacturing production in England, is the keen and watchful rival of the aristocracy. Under the lead of Cobden, and to give the mechanic cheaper food, it abolished the corn laws, which protected the privileged class and the culture of their immense estates. To-day, it demands through John Bright legislation that shall liberalize the tenure of land; and with the sanction of Gladstone, England's future prime-minister, seeks an extension of the suffrage. The student of nations, who follows through the last forty years the policy of Russia, in developing her mechanical and manufacturing industry, is prepared to understand how such statesmanship should culminate in the thunder-flash of that emancipating edict which made twenty-three million serfs, freemen.

The history of mechanical progress shown in one implement of agriculture, the plough, contains in epitome the history of man's contest with nature, and his ascent to civilized supremacy. A hafted wooden tooth, drawn through the ground by a shaft, and leaving but a slender superficial groove, is the rudiment. It is held and drawn, with painful, exhausting toil, by slaves. With the ploughshare, the coulter, the mould-board, the two handles, and the yoked oxen come the deeper and broader guage of the furrow, relief to the over-tasked ploughman, and a free yeomanry. The polished instrument of iron, with the bended beam, and nicely balanced adjustment of weight, lines, curves, and angles, with which its parts are put together, and which slides through the glebe with such easy guidance in your ploughing match, carving and turning the curling sod without a break, represents a five-fold gain in effectiveness over the plough of eighty years ago It represents, besides, an industry more profitable and less laborious, the liberation of the mind from the cramping bonds of an over-worken physical

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fibre; it represents the farmer who is taught in the school, who reads, and writes, and thinks, who owns his land, and makes the government. And depend upon it, this same human creature who has dragged the plough, and held the plough, and driven the oxen, will not rest content until he puts steam into the yoke, seats himself on the plough's back, and ploughs the earth at his ease.

The mower of our day is the happy type of an age ameliorated by mechanical art. The portraiture of Time that fancy gives us is out of date. Keep the hour-glass. We cannot get rid of that. But picture him no longer, as the gaunt old man who has worn the flesh from off his bones, in cutting swaths with an old-fashioned scythe, but rather as the well-conditioned farmer, mounted upon his chariot-machine, driving his team afield through the falling grass, to the ringing music of the clipping blades.

Labor-saving machinery alone, however, cannot insure a true progress in agriculture. That involves many elements; unlike the mechanical and manufacturing arts, the product of agriculture is not a fabricated, but a natural one. It is a living plant. Art here can only aid the vital organic force. It may improve the species by mixture and by culture, it may multiply the crop, but it cannot construct a plant out of its constituent elements. The principles of vegetable growth upon which agriculture depends are among the subtlest, most veiled, and intricate of the operations of nature. They lie in the shadowy region that borders upon the thick impenetrable darkness that shrouds the mystery of life. That region, however, has been explored, and the exploration has disclosed for the first time in the history of the race, intelligible principles of farming that inspire the hope of an agriculture progressive and productive almost without limit. The objection does not now apply which Lord Bacon brought against the works on agriculture to which he had access. A large collection of them, which he owned, he caused to be piled up in the court-yard and set on fire; because said he, "In all these books, I

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find no principles; they can, therefore, be of no use to any man." What the law of gravitation is in astronomy, what steam is in mechanics, what the Constitution of the United States is in government, the beginnings of epochs, such is the newly developed science of chemistry, in agriculture. That light and heat from the sun, that water, air and earth were necessary to vegetation, was understood. Experience had shown that certain crops were better adapted to some soils than to others; that a succession of different crops was better than a succession of the same crops; that fallows increased the vegetative power of the land. These and such as these empirical rules were known and obeyed; and yet, in spite of husbandry of this sort, crops would in time deteriorate, and the soil lose its virtues beyond the skill of the farmer to devise the means of restoration. The writings of Columella and Varro, while they disclose a system of Roman husbandry, most careful, methodical and painstaking, at the same time reveal the appalling, irremediable fact, that the production per acre had largely diminished. Filled with the ancient faith that the golden age of the race was in its prime, and that then the arts were divinely established in their perfection, the Roman farmers dreamed that a declining agriculture was due to some lost charm, some missing precept, which tradition had failed to transmit down the course of the centuries from hero ancestors taught by the gods. Modern agriculture has exhibited the same stages of decadence. But modern science has revealed the causes of such decline and placed within the control of man the powers that will enable him to resist this downward tendency, if he will but use them. Earth, air, and water have been resolved into their priomordial elements. A searching analysis has shown what essentials of its life and substance, the plant draws from the soil, and what from the atmosphere. The microscope has revealed the complex physiology through which by a subtle alchemy the sun in the heavens converts the mineral earth, and air and water, into an organic growth that is food for the nations. Among the

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most valuable generalizations of science is the demonstrated truth that certain known constituents of the soil do in the process of vegetable growth, enter into the essential constitution of the plant, and as a consequence that these constituents are removed from the soil in the removal of the plant of which they form a part. These indispensable substances of the soil compose but a very small portion of its bulk, and they are not replaced by any process of nature, certainly not by any process rapid enough to keep pace with the succession of crops. To restore the conditions of vegetation, they must be replaced by man. Every crop diminishes the capacity of the land for the production of another crop. This diminution may not be perceptible in its immediate influence upon a virgin soil, rich in the necessary elements of vegetation. Years, even generations, may elapse before these mineral deposits shall seem to fail. Rotation in the crops will equalize the drain upon the different portions of the soil. The yearly agitations of the plough will bring to the roots of the plant other particles of earth whose virtues have not been extracted, and the steady action of the sun upon the changing surfaces exposed to its rays, will develop new resources of vegetative power. These and other causes will postpone the day of exhaustion. That day when it comes, is one of wrath, of ruin and desolation for the work of civilized man. The imposing fabric moulders, crumbles and falls. The fertile plain once waving with bountiful harvests and sustaining populous and well built cities, becomes a barren waste. The blasted fields of ancient agriculture are to-day monuments of the vengeance which nature wreaks upon a culture that does not compensate the soil. The Roman Campagna was once the garden of Italy from which the millions of the imperial metropolis drew daily supplies of food. Here was the site of the luxurious country-seat, the splendid villa, the estate of the Roman senator. Here were purple vineyards, and rolling landscapes covered with golden grain. Here, too, were temples of the gods. Now a noisome desert exhales a poisonous miasma and affords the prowling robber a

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lurking place in its tangled growths. Only here and there, where a squalid peasant has fixed his hovel, can a sign of human habitation be seen. Not the Campagna alone in Italy, and not Italy alone of the ancient states, exhibits the ravages of the despoiling husbandman. The Etrurian coast, Calabria, Asia Minor, the islands and continent of Greece, bear constant testimony to the desolating power that exists in a vicious agriculture. With the extension of Roman sway and the inadequacy of Roman farms to supply the demand for food, the fertile lands of Sicily, Sardinia and the Mediterranean coasts of Africa, became tributary to the granaries that fed the Roman populace, and the inevitable curse of spoliation smote them too with sterility.

And to-day, while the historian recounts the stages through which Rome passed from a social condition in which a sturdy yeomanry were largely owners and tillers of the soil, and the strength of the state in war and peace, one in which a Cincinnatus could pass from his plough and four acre farm to the dictatorship, charged to see that the republic should receive no detriment, and from the dictatorship back to the modest farm wearing the crown of gold, after he had vanquished the foe and saved his country,—and then comes down to the time when the Gracchi strove unto death, but in vain, to recruit by a distribution of the public domain the diminishing farmer-class, and rescue them and their salutary power from the encroachments of an aristocracy of capitalists and patricians,—and so still further on to the period of over-grown estates tilled by slaves, of a yeomanry impoverished, of pauperism massed and accumulating, of the few hugely rich, and of the multitude poor, dependent and corrupt, till Cæsar comes, and Caligula, and the invading Vandal, with the manners, morals, and events of their respective times, down to the doomed and irretrievable fall,—while the historian recites this melancholy story of a risen and fallen empire, the man of modern science reads date by date, the parallel record of the waning fertility of an unrequited soil, traces the tendency of deteriorating

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lands to become aggregated in large estates, to yield themselves exclusively to servile labor, to degrade the farmer, to swell the proletarian mob, to induce the necessity of an outlet for population, and of gaining new resources of food by war and conquest,—and so weaves an argument that startles if it does not persuade us, that the various chapters of this tale of glory and decline, are illustrations of the natural laws of agriculture and a warning for all time. To his mind, one Liebig had been worth an hecatomb of Gracchi to save the Roman state.

To no people should the warnings of science pointing to the ruins of the past come with more power to impress with serious alarm than to our own. For there is no people upon the face of the earth that would achieve greatness, that prosecutes an agriculture more wasteful, improvident and reckless of the indispensable conditions of an enduring fertility of the soil. We have ravaged the continent like an enemy's territory. With the axe and with fire we have hewn down and burned away the primitive growths of the valley, the hillside and the prairie. Crop by crop, we have drawn from the earth its precious minerals, and borne them hundreds and thousands of miles to distant cities, across the continent, over the ocean, and never returned again them or their equivalents; until at last, exhausted of its treasures, it refuses longer to yield the abundant harvest of its prime, and lapses through successive stages of deterioration into impoverishment, unfruitfulness, and sterility. The failing crop, instead of stimulating the American farmer to seek a remedy in an improved system of cultnre, too often prompts him to abandon the lands he has reclaimed from the wilderness, and sends him out in search of fresh fields and pastures new on which to repeat the process of devastation. From New England, he migrates to New York, from New York to Ohio and Wisconsin; and now Ohio complains of abandoned farms and of migrations to the West. Under this system, while with the increasing acreage brought under cultivation, the aggregate product of the country has immensely

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increased, lands which half a century ago were unsurpassed in productiveness, and seemingly inexhaustible, have visibly deteriorated. Whole States have been impoverished. In our own Commonwealth, the average of the crops of corn, wheat, rye, barley, oats and hay, was quite low in 1807, but it was some fifteen per cent. lower in 1855. In New York, where the average crop of wheat eighty years ago was from twenty-five to thirty bushels, it is now only fourteen bushels per acre. Ohio, which eighty years ago presented to the farmer a rich unbroken soil in the wild state of nature, now yields a diminishing average, per acre, of twelve bushels of wheat. In 1850, the average yield of wheat per acre did not exceed seven bushels in Virginia and North Carolina, and five bushels in Alabama.

It is a well authenticated fact, that of the one hundred and sixty-three million acres of improved land in the United States, three-fourths receive no return of the necessary elements of vegetable growth that are carried off by the annual harvest. A distinguished agriculturist calculated in 1850, the annual waste of these elements to be equal to the mineral constituents of fifteen hundred million bushels of corn, and that the amount of only two of these elements thus lost in a single year, was worth at their market price, twenty million dollars. "To suppose," says the author of these estimates, "that this state of things can continue, and we, as a nation, remain prosperous, is simply ridiculous. We have as yet much virgin soil, and it will be long ere we reap the reward of our present improvidence. It is merely a question of time, and time will solve the problem in a most unmistakable manner. What with our earth-butchery and prodigality, we are each year losing the intrinsic essence of our vitality. Our country has not yet grown feeble from this loss of its life-blood, but the hour is fixed, when if our present system continue, the last throb of the nation's heart will have ceased, and when America, Greece and Rome, will stand among the ruins of the past." Is it to-day, I would ask, quite certain that our country has not al-

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ready grown feeble from this cause? When we reflect upon the notorious fact, that nowhere has this deterioration of the soil been so deep, so general, so exigent, as at the South, under the combined effect of an exhaustive culture, and the rude husbandry of slaves, incapable of developing more than a small portion of the native resources of the earth, and remember the aggressive spirit in which Southern statesmen pushed for the acquisition of new territory on our Southern border, and for domination in all the public domain, and the connection of this fatal policy with the present civil war, who shall say that an accursed thirst for land, more land and new land, stimulated by a wasteful, profligate agriculture, that robbed the soil of its wealth, and the man who tilled it of his wages, has not, in some degree, ministered to that madness of treason which seeks with all the arts and engines of destruction the ruin of the nation?

It needs not, however, the present calamity of civil war, or the deserts that mark the limits of ancient states, to make clear as light, that a migratory, nomadic agriculture, that first plunders the earth and then abandons it, must at last enfeeble the national strength. It is all involved in the proposition which science has over and over again demonstrated that every crop takes from the soil ingredients which are indispensable to vegetation, but of which no soil contains an inexhaustible supply. As a necessary corollary to this proposition, science enjoins upon agriculture as the condition of a self-sustaining and lasting vitality the precept, that whatever is taken from the soil by the harvest must be restored to it again. The violation of this precept inflicts an injury upon the country, a wrong upon the race. It tends even to the extinction of the human species, or what is quite as bad, to thrust it backward towards barbarism. To destroy the productiveness of the soil, to squander the elements of that productiveness, is to destroy the hopes of civilized humanity upon earth. It robs posterity of its just birthright to a career of progress. By what right shall we, the creatures of a day,

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the transitory tenants of this fair and fertile earth, a little while entrusted to our keeping, despoil it of that without which human advancement, human existence, is impossible, and turn it over sterile and impoverished to the generation we summon into being, and charge as we are charged, with the great destiny of man? Is not this to tempt the creating Providence? Through the dark infinitude of countless ages while night brooded over chaos, to that dawn when light was kindled in the heavens, and the morning stars sang together, and through all the rounds of change that light has shone upon since light was, this fragment earth has been preparing for the habitation of the sons of men. By fire and furnace heats, and icy congelations, by the lava torrent, and the grinding glacier, by the earthquake and the volcano, the upheaval of mountains, the ocean's deluge and the river's flood, by tempest and whirlwind, by the powerful action of the sun through eons of alternating day and night and ever revolving seasons, by the kingdoms of vegetable and animal life whose multitudinous tribes ruled by Rhizodont and Mastodon are now extinct, the moist, absorbent, fluent, vibratory atmosphere is evolved and purified, the solid rock is made and crumbled, and its powdered grains sorted and washed and mingled in the loam and mould, the flow and distribution of the waters are fixed, and all things toned to the temperature that suits the home of man. Through all the cataclysms of the world, the minerals of the harvest have been borne as in the ark that bore the fate of man upon the waters of the flood, until at last they have been safely garnered up in the ripe and fruitful soil. To take from the earth this precious diamond dust and not restore it, to destroy the providential uses of these costly products of all time, and so imperil man and his dominion, is it not a sin against the creation, is it not a forbidden thing, as truly as though the injunction had been graven on the tables of stone, and thundered from Sinai with the commandment, "Thou shalt not steal?"

Let an advancing morality teach our duty to the soil. It is but lately that the dumb and helpless brute was protected from

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the cruelty of man by the penalties of the criminal code. Let the appeal of a starved and emaciated soil touch the instructed conscience of civilized humanity. But whether the duty be recognized or not, the infraction of the law will bring its direful penalty.

In the light of these considerations, it is not with unmixed satisfaction that we regard the progress of mechanical triumphs over the soil. We welcome at a time when all the resources of the nation are needed, the accession of fifty million acres to the productive land of the country that was made in the ten years of the last census, and we rejoice in an increase of agricultural product, greatly outrunning the increase of population, accomplished by means of improved agricultural implements and thousands of miles of additional railroad. But it is important in connection with the consideration of the conditions of a permanently prosperous agriculture, to call attention to the fact that these tremendous mechanical agencies, whose aggregate effect is so astounding, are so many mechanical advantages in accelerating the process of exhaustion. Using these powerful appliances, you pump the waters from the well no longer by hand, but with a steam-engine. The greater the yearly crop gathered, the greater the drain upon the fertilizing elements of the soil, and the sooner their limit is reached; the more important too it becomes to find some counteractive tendency which shall restore the equilibrium so injuriously disturbed by the deportations of the harvest.

Let the processes of nature ordained by that wisdom that was at the foundation of the world, direct our inquiry. Throughout her infinite domain to the remotest star, not an atom of matter, not a throb of force, even to the faintest vibration that pulsates in a ray of light, is ever lost. The thunder that shakes the firmament, the lightning that rends the rock, the tornado that prostrates the forest, the convulsion that rocks the earth, and opens gaping seams which swallow up cities, are operations in which she but combines and recombines her everlasting elements. An unending circle of self-adjusting change

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preserves forever the balance of her stupendous harmonies. Nothing loses a function except to gain one. Nothing comes to an end which is not a beginning. Every state is a stage of transition. All things flow with the tide of time, and the current is continually returning upon itself. The trees grow old and at last decay. Their mould builds up the ascending columns of another wood. By the processes of growth, the dust of the earth is upraised in grains of wheat and corn. Wheat and corn, as food, are assimilated by the organisms of animal life. Upon man and bird and beast alike descends the inevitable decree, "Dust thou art, and unto dust thou shalt return;" and so the cycle of transformation is renewed.

Lawrence and Lowell and Manchester have been built upon the banks of the Merrimac in the faith that its current would never cease to flow. For ages it has flowed, and it flows on forever. And yet no inexhaustible, unreplenished fountain supplies it. With the cubical dimensions of the whole planet for a reservoir, no such fountain could have supplied it. The guaranty of the constant tide is in the equipoise of nature's self-sustaining system of compensations. Drop by drop falls the rain upon the hills and mountains of New Hampshire. Dripping from the trees, oozing from the ground, it trickles in tiny rills, it gathers in brooks, which gather in larger streams. Down the slopes, in the swift torrent, through the rocky gorges, by waterfalls and cataracts, it is poured into the valleys below. It passes from the valleys and becomes the majestic river, which after toiling in three manufacturing cities at the wheels whose mighty revolutions turn nine hundred thousand spindles, and throw the shuttles of twenty-four thousand looms, glides on untroubled to find its level in the broad Atlantic. It finds its level, but it finds no rest. By the potent action of the sun, in subtle distillations it is raised upon the currents of an invisible sea, and borne again into the regions of the upper air. It collects and drifts upon the winds in vapory clouds, and finally again descends upon the sources of the spring and stream. To supply continually the rivers of

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the globe, the Mississippis and the Amazons, the oceans into which they flow are lifted from their beds and plunged from the precipices of the sky. Nature in all her works gives one precept, "*Waste not, want not, use, save and not destroy.*" These are the laws of permanence and power.

Where then among the forces of society shall we seek the principle whose operation shall harmonize with nature's grand economy, and be the basis of a system of agriculture that shall be perpetual and self-sustaining in the elements of a fertile soil? The conscience of the individual is of too limited a scope to be trusted to decide upon grounds of permanent well-being the issue in which present gain is met by a possible or prospective loss to unborn generations. This principle, if found, will be found most effectually established in the economy of the national industry, and so established that the present shall not be called to the difficult virtue of self-sacrifice, the resources of the future shall not be endangered, and the very working of the farm shall lay the foundation for still more abundant harvests. I find the hint of the principle sought, in that rule of good farming which enjoins the consumption upon the farm of the products of the farm, and the selection for the market, not of the hay and turnips, but the mutton and the beef. This economy carried out upon a national scale, would give us a distributed home consumption of agricultural products at diffused and accessible centres of a diversified mechanical and manufacturing industry, and of the commerce which such industry creates. For at these centres the fertilizing constituents of the harvest accumulate. Rejected by the processes of consumption, still as suitable for the crop as when deposited by the last inundation, they become again available to all neighboring farms, to which they are as truly the raw material of an agricultural product, as iron, cotton and wool to the machine-shop and the mill. The spread of cities like Lawrence throughout the land, with different industries, adapted to local capabilities, will give to the agriculture of the nation the conditions of a self-sus-

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taining, perpetually compensated, and lasting fertility. The agriculture of China that ante-dates the buried epochs of the Egyptian kings, and to-day flourishes, and feeds the swarming millions of that empire, is based upon the principle that seeks from the city restitution to the farm of what is taken from it by the harvest. Great as is the benefit which agriculture already derives from the neighborhood of centres of industry and commerce, it has hardly begun to use the resources which abound in such localities and should be made available. In a true economy, the city and the town should be regarded by the farmer as a part of his farm-domain. They are so by the laws of nature. They should be so in the practice of husbandry and the regulations of their police.

The problem of utilizing the sewage of cities, which is so earnestly discussed abroad, has vital relations to the progress of civilized states. Throughthe sewers of cities draining into rivers and the ocean, the highest properties of the soil are irrecoverably lost. The turbid currents of North river, the Thames and the Seine, are richer than Pactolus with its sands of gold. For that which is pollution to their waters is the touch of magic to the fields and the power of food for successive generations of men. The value of this material as a fertilizer is obvious, but it has been comparatively estimated and put beyond controversy by the experiments of the Prussian government in reclaiming land with the sewage of Dresden and Berlin. Land which without any applications yielded but three to one from the seed sown and seven to one when treated with the ordinary resources of the farm, yielded fourteen to one when fertilized from the sewer. As a mere problem of pecuniary saving it is a momentous one. The fertilizing portions of the sewage of the city of New York are computed, on the lowest estimate, to be worth seven million dollars per annum. We have authority for saying that the wasted drainage of the city of Boston is capable of restoring annually to a high condition thirty thousand acres of sterile land. The yearly waste of fertilizing elements in

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Great Britain and Ireland are carefully computed at one hundred and forty million dollars. There is no direction in which ingenuity has of late been oftener or more effectively exercised in the industrial arts, than in contriving modes by which the dross, the shavings, the chips, all the unassimilated residues that remain after the completion of the main product, are converted to some profitable use. But there is no problem to which the ingenious mind could turn itself with greater advantage, than that of utilizing sewage. The invention of a plan by which the slime and sediment of cities may be transformed into corn and wheat for human sustenance, and the vigor of the vegetating earth be perpetually renewed, gives scope for one of the most beneficent systems of economy ever devised. The revenues of a kingdom would be a cheap equivalent for such a plan. The statesman seeking for his country unfailing sources of prosperity, the sanitary physician striving to convert the fountains of disease and pestilence into fountains of life and strength, the farmer anxious to invigorate his exhausted lands, the chemist eager to give new proofs of the resources of his favorite science, the engineer who would render a public service, can afford to give this subject his deepest thought and care.

Centres of mechanical and manufacturing industry, and of the commerce based upon it, give to a system of agriculture its desired stability. There is little material out of which to make exhausted fields and nomadic farmers in a region that commands easy access to the market. Land there is valuable, and yields a rent; while the inducement of profit is always operating to keep it in good condition. No amount of native richness in the soil can make good the want of markets. But neighboring markets can make a sterile soil rich. Nothing will counteract the tendency of the American farmer to wander away from home, but a home demand for his product. This makes the fortunes of both the farmer and the farm. See what a stimulus the manufactures of England have been to her agriculture. Two centuries ago the highest aver-

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age crop of wheat in England was six bushels per acre. The lowest average in any of her counties to-day is thirty-four and a half bushels and from this the averages range up to fifty bushels per acre. In little more than a century she has brought her aggregate annual crops of wheat from sixteen million to ninety million bushels and converted a quarter part of her whole area from the marsh, the morass, the wilderness and the barren moor, into blossoming gardens. Her giant-factoried cities are set like islands in an emerald sea of verdure and fertility. And much the greater portion of this result has been the work of the last fifty years. The development of manufacturing industry in America is attended with like symptoms of a regenerating influence upon the soil. The tide of migration spreading from the Atlantic coast westward was one of devastation. An improved and fertilizing culture goes in the train of the new industries as they slowly diffuse towards the West, and repairs the waste places of early improvidence. It is indicative of this movement, that in states where manufacturing industry has been extensively developed in the ten years of the last census, the annual crop of garden products has increased in value, in Massachusetts three fold, in New York and Ohio four fold, during the same period. These crops are grown in the neighborhood of towns and cities. They require the most skilled and fertilizing culture, and are auguries of improving lands.

The intimate connection that exists between the prosecution of the arts of mechanical and manufacturing industry and the progress of a nation, needs no illustration in this city, county or commonwealth. The theme is a familiar one. The annual manufactures of Massachusetts, valued at two hundred and sixty-six million dollars, and structures like these we see around us here, distributed throughout her borders, are works that manifest her sturdy faith. This faith she has cherished along with her love of knowledge and of freedom; or rather these are the phases of her humane and earnest love of progress. In a diffused and diversified national industry and an exchange

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of its products by an unfettered domestic commerce, she has ever striven to establish the firm safeguards of independence, union and liberty. How wisely she strove, how unwisely her counsels were neglected, let the witness be the mad rebellion that now rages; which was nourished into being by the hope of aid from foreign states, which seeks to destroy the Union, and to found an empire based on slavery, and which began in the confident belief of its leaders that one single crop raised on Southern plantations and not equal in value to the loyal home-consumed hay crop of the North would, nevertheless, in consequence of its abnormal relation to foreign manufactures and the exchanges of Northern commerce, bring the governments of the United States and Europe in submission to their feet. In this belief, when they raised the flag of treason, they arrogantly proclaimed cotton to be king. To-day, Massachusetts with the bayonet debates on bloody fields the cause of independence, union and liberty. But it is the same cause which on questions touching the national industry she debated through the eloquence of a Webster and a Choate. And now, when the policy of national disorganization that has ruled and rioted in the land so many years has culminated in revolt, the first resource of the nation with which it seeks to invigorate and combine its abused and dissipated strength, is the encouragement of the national industry. The prosecution of a gigantic war upon the principles of a sound financial policy calls for large annual revenues. Such a course is necessary to maintain the national credit, and in the case of an inconvertible currency, to prevent depreciation and the rise of prices. These needed revenues the government derives in largest measure from manufactures. The development of manufactures, such as can be made to take root by a temporary adjustment of tariff and excise, naturally becomes and has become a part even of the revenue policy of the nation. Accordingly, the country is sprouting with new growths of mechanical and manufacturing industry. Let them cover the land. Let villages and towns, the centres of these imperial and liberalizing

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arts, multiply and increase, to develop a progressive and prosperous agriculture, to deepen the foundations and quicken the life of society, to distribute the benefits of skilled labor reinforced by an iron-armed machinery, and increased in productiveness a hundred fold, to establish the union of the crop of the farm and the labor of the neighboring factory, foundry, or furnace in ultimate products, which shall become the staples of a pervading domestic commerce at the lowest cost of making exchanges; such a commerce as has been recognized since Adam Smith declared the principles of the wealth of nations, as the most profitable to communities and states. So knit the fibres and harden the sinews of the national strength. Science has called attention to the general fact that the simple substances of which all material things are composed do not, except in combinations with each other, enter into or influence the organic growth of plants. So in the social economy, not the isolation of the farmer or the manufacturer, but the union of both gives the needful element of social organization.

Let England strain every nerve to gain and hold possession of the markets of mankind with her vast and world-embracing system of manufactures and commerce, and let her strive with equal effort to feed from her garden patch the millions whom she thus employs; and so doing, let her teach the docile nations to devote themselves exclusively to the culture of the earth, and persuade whom she may. We will observe her practice, and draw our precepts for ourselves; and hail

"The rise of empire and of ARTS."

But it is not enough that mechanical and manufacturing industry supply the implements, the markets, and the general conditions necessary to a self-sustaining and improving agriculture. The true principles of such an agriculture must be investigated, inculcated and diffused. This necessity has been most emphatically recognized in the liberal grants of land Congress has made for the establishment of agricultural col-

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leges. Such a measure is of great import. It implies that the collected, intelligent judgment of the nation was fully persuaded that American agriculture is not what it ought to be, that it is a matter of national concern that a strong effort should be made to introduce and spread a better system of farming than is generally practised, and that this can be effectively done by the thorough instruction of the farmer in the scientific principles and best practical precepts of his vocation. The record of the debates that have attended the progress of this measure, shows that the accumulating evidence of the deep impoverishment of the soil, of the reckless waste of the elements of vegetation, the enormous and unnecessary losses in all branches of American husbandry, and the unquestionable superiority of foreign over American agriculture, impressed the national legislature with the need of vigorous, and the possibility of reformatory action. The measure is suited to the time, when all the resources of the country should be husbanded and developed to the utmost, to enable it to bear with the least suffering the burdens of war. It is the proper supplement to legislation for the encouragement of manufactures. England prepared herself for the impending struggle with Napoleon by the establishment of her board of agriculture during the ministry of William Pitt. The Roman senate sought to invigorate the failing Roman farms by causing the work upon husbandry of the Carthaginian Mago to be translated and published at the public cost; the only literary work that is known to have received this august sanction. Congress has provided in the college a more potent organ of improvement than the agricultural board. More fortunate in its opportunities than the Roman senate, it gives the American farmer the great book of nature, with science to interpret to him, from its open page, the mysteries of his art.

The action taken is wise. What is wanted is to have the farmers of the land put into connection with the highest knowledge of the natural laws of agriculture to which science and observation have attained. In no way can this be done so

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successfully, and with such general advantage, as through the training and instruction of a college. To establish this connection, it is not necessary that all should participate directly in the discipline of the institution. The object will be secured by the pervading influence of the example of farmers, who have had this advantage and manifest the fruits of it in a higher and more profitable culture. The living farmer, disciplined in his calling, master of the resources of his business, which science has developed, managing a model farm and making money by it, is the best possible missionary in the cause of a progressive agriculture. The distribution of libraries will not begin to have the influence of one such man. By the charm of success he will convert whole neighborhoods to the right works and true doctrine. A hundred such men might revolutionize the farming of a state.

Nor will the college diminish the useful and important functions of a society like this. It will rather multiply and enlarge them. It will raise the standard of competition. It will introduce new subjects of experiment, new processes to be tested, improved, discussed and applauded with the prize. A more varied and higher interest will centre in these gatherings. The college sending out to the farms every year a new body of men, fresh from the latest results of investigation and experience, will be felt in our societies as a constant source of life, of progress, and of hope.

Such an institution peculiarly meets the wants of the commonwealth of Massachusetts. We need the higher methods of agriculture to cultivate the land of Massachusetts as it should be cultivated. We have here in diffused centres of manufacturing industry and dense population, the conditions of a self-sustained fertility and of the most profitable farming The agriculture of the state has undoubtedly been benefitted by it, but not nearly to the extent that is possible. The soil of the state, originally not rich, has been impoverished by the harvests of many generations. The aim should be to raise it to a condition of luxuriant productiveness. It can be done,

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and riches can be accumulated in the process. There is a demand in the state for food officially estimated to amount at least to twenty million dollars annually, which the agriculture of the state does not supply, and that demand is increasing.

Contrast the ratios of production in Massachusetts with those of England. Alike having dense populations, and twenty consumers to one producer of food, all the revenue of the manufactures and commerce of England, and her personal capital, as shown by the returns of her income tax, does not exceed two-thirds of the net income from the products of her farms. Of the three hundred million dollars that represent the annual industrial product of Massachusetts, agriculture gives but one-eighth. While from 1807 to 1855 the soil of Massachusetts did not hold its own in average productiveness, every English acre produces thirty-three per cent. more food than it did fifty years ago. This result in England has been effected in response to the demands created by her manufactures through the liberal use of capital, furnished in part from the exchecquer, higher methods of culture and the resources of science. Guano, which the chemist first indicated as a most valuable fertilizer about a score of years ago, has been imported into Europe to an amount in value in 1859 of over one hundred and twenty-five million dollars, and the equivalent in corn of four hundred million hundred weight, nine-tenths of the annual import of which, in 1859, equal at least to three hundred thousand tons, was to England. From the relation of this fertilizer to English agriculture it has been said by a distinguished writer that "America, by her guano beds, rules the price of all the corn markets of Europe, and more especially in England." Again, in the matter of fertilizers annually manufactured in England, the Duke of Argyle, ten years ago, stated in a public address that they amounted to sixty thousand tons. Liebig says that the amount of such material used in England, France and Germany in 1861 was not less than twenty million hundred weight. The same authority informs

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us that superphosphate of lime has come to sustain such a relation to the turnip crop and forage grasses of England, that the crops of meat and grain have been increased to the same extent as if an addition of one-fifth had been made to her arable land. For nearly a century she has been an importer of bones, gathering them even from the battle fields of Europe and the Sicilian catacombs. Our agriculture still has no such demand for bones as to make it unprofitable for her to import them in ship loads from America. She has loaned forty million dollars of the public money for the encouragement of drainage, and immense amounts of private capital have been expended in these improvements. Her systems of crops, of root culture, of sheep husbandry, her improved breeds of cattle, are in themselves studies, and the results of experiment, enterprise and skill. One obstacle after another has been met and overcome. When, on the repeal of the corn laws, cheap produce from abroad brought a pressure upon English farmers like that which Western produce and railroads brought upon the farmers of Massachusetts, they did not succumb, but put forth more strenuous exertions, and by improved methods and greater prudence, succeeded in raising wheat at fifty-seven shillings, with the same profit as before at seventy shillings per quarter. By these means, the English farmer bears the yearly burden of twenty-five dollars per acre in rent and taxes, and gradually attains a competence.

I do not cite these facts to show that the English system of agriculture is a model, which it is either possible or desirable for the American farmer to imitate. That system as a whole, and especially in its relation to labor and the tenure of land, grows out of the structure of English society, which in most essential respects differs from our own. I cite them for the purpose of showing that the new methods, processes and resources I have indicated, are real and substantial accessions to the farmers' power, that they are not the mere inventions of men who can afford to sacrifice to the sciences, but that they have become indispensable in a

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national system of agriculture, a ground of constant reliance in the most profitable and productive farming; in short, that they represent the farming of farmers. The people of England depend upon them for that necessary surplus of food which it is the business of farmers to raise for the sustenance of the great mass of the population engaged in other employments. The uncounteracted effect of the sudden extinction of these new resources of agriculture where they are relied upon, might reasonably be expected to produce bankruptcy, famine, and even social revolution. The general principles, however, of such farming must be applicable here. The application of these principles in immediate proximity to the demand furnished by a populous manufacturing state, and the increased productiveness that would result, could not but greatly enlarge the farmer's revenues. The increasing burdens of taxation, nothing when compared with the salvation of the government for which they are sustained, insignificant when compared with the burdens of other civilized states, are still an incentive to a higher culture. The growing cheapness of railroad transportation deepens the need to our farmers of reinforced energies to enable them to maintain their hold upon their own markets, against the products of the newly-broken soils both of the East and the West.

Schools, colleges, and institutes have been among the most important and useful agencies of agricultural progress abroad. The experiment has been tried with success. The measure of American enterprise in its boldness and originality might almost be expressed by the phrase—What has not been done, can be done. Surely, no one will suggest that Massachusetts, in the important matter of agricultural education, is to fall below the standard of the familiar teaching, that what has been done can be done again. The Commonwealth has accepted the bounty of the nation and the trust which it imposes. She has undertaken and bound herself to provide for her young men an institution at which they can be instructed in the principles and economy of agriculture. It is no longer a question whether

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we are to have a college, but what kind of a college it shall be. Shall it be worthy of Massachusetts, and rank with her other institutions of learning, education, and science? Shall it have a vital relation to her farms and farmers, and be felt by them as a power? She can do a great service to herself and the country, and give the prestige of success to a cause of national importance, by furnishing the example of an efficient agricultural college of the best stamp. The governor of the Commonwealth, whose mind is always open to the best thought of his time, and two successive legislatures, intelligent and devoted to the good of the state, have taken up this work with earnestness and zeal. This unanimous official action indicates a sympathy with the undertaking on the part of the community at large that is most hopeful and significant. The people welcome an institution that is to open new paths to skilled and instructed industry. The stimulation of the educational system of the state greatly multiplies the number of those who crave a sphere in which disciplined faculties can find appropriate exercise. The young men that annually go out from your high schools, eagerly seek employments which call for the intellectual activity required in the application of systematic knowledge. They ask for vocations vitalized with the life of principles, and with unsatisfied hearts put on the harness of a calling that stagnates in routine. Very much of the highest and best instructed talent of the country, which was formerly absorbed by the three professions and by statesmanship, is devoted to the arts, the management of business and productive industry. And these employments furnish scope for such talent. To organize some of these great industrial establishments, to wield the enormous masses of capital embarked in them, to build railroads, to direct the ventures of a large commerce, and with success, requires the grasp and vigor of mind that would be equal to the administration of. In occupations of this class, but on a smaller scale, educated and instructed intellect finds congenial activity and liberal rewards. There are farms and farmers on them in our

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county, that are abundant proofs that agriculture furnishes an occupation for the man of thoughtful, trained and cultivated mind. But the agricultural college is the visible, conspicuous sign to the people that such is the fact.

And indeed, what industrial or business pursuit gives more real scope for educated capacity, or holds out more inviting attractions? The selection of the crops, the distribution of the land between them upon proper plans of rotation, a systematic economy under which nothing shall go to waste and all the operations of the farm shall have their requisite adaptations to each other and contribute to the ultimate profit, the combinations of the compost, the choice of implements and stock, the direction of the labor, the determination of the time and mode of harvest, the preservation of the gathered crop, the making of the necessary purchases and sales, call for sound judgment and real ability. A constant watchfulness must attend the growing crops. A wise forethought must anticipate and counteract injurious influences. Farm improvements, the reclamation and restoration of lands, and the whole unexplored domain of agricultural experiment are open to enterprise. The field of the higher husbandry lying almost untouched, waits to bestow its liberal bounties upon those who will take possession of it with the required courage, capital and skill. The tasks that have most severely taxed the farmer's strength, mechanical ingenuity is continually lightening. Above all modes of life, the farmer's is exempt from the struggles of competition, the frivolities of ostentation, the hazards of chance, the temptations that corrupt the heart and deaden the conscience, and the fever of the over-wrought brain. He feels the movement of the intense life of the central city, but escapes its wear and tear, its tumult and excitement. He enjoys the health and strength of vigorous manhood. His home is the seat of calm delights, of tranquil comfort, contentment, plenty, and a cheerful hospitality. How alluring are his proper studies! The history of his art, his implements, and the tenures of land is the history of mankind since history was written. In his

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country's agriculture, he investigates the foundations of his country's greatness. From thē acres of his farm, lead the avenue of science, to the whole realm of nature—a realm of knowledge, wonder, mystery. With science he may descend into the sepulchre of growths and races that have perished. With science he may read with awe from the rocks the record of the globe's long agonies. With science he may explore the kingdoms of the earth, the sea, and air, their infinite variety and perfect harmony, and may pass to the verge of that fathomless gulf, the mind of man can neither sound nor cross, that separates organic from inorganic nature. With science he may raise his eyes to the heavens, and survey the wilderness on wilderness of lighted worlds, drifting in their trackless, destined courses in the shoreless universe of God. These studies of the farmer are most appropriately described by that famous passage of Cicero in which he celebrates the charm of letters. "Hæc studia adolescentiam acuunt, senectutem oblectant, secundas res ornant, adversis perfugium ac solatium præbent; delectant domi, non impediunt foris, pernoctant nobiscum, peregrinantur, rusticantur."*

While, however, this institution may hope to receive the general good will and favor of the people of the commonwealth, it should especially receive the encouragement of farmers. To promote their interests, it has been established by the nation and the state. Let them regard it as peculiarly their own. Let them insist upon its proper organization and maintenance, and co-operate in all efforts to insure for it the beneficent career of which it is capable. Let no lurking suspicion or distrust that science has no benefits in store for agriculture, chill the cordiality of your support. Still less let the old wrangle between the man of science and the man of practice, in which the presumptuousness of the one was met with

* These studies are a discipline to youth, a pleasure to old age, an ornament to prosperity, a refuge and a solace in adversity; they delight in the house, out of doors they are not in the way; they are companions by night, they travel with us in foreign lands, they stay with us on the farm.

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the contemptuousness of the other, be revived. The farmer has tested too many theories, and thrown their broken fragments into the faces of their authors to cherish much revenge. The man of science has achieved too much not to be able to bear with composure to be reminded of his failures. And let no misconception of what science is prevent a proper estimate of its worth. Doubtless, there are too many professors who seek to impose upon the general thought, as science, the baseless phantoms of their own minds; who speculate and soar, but are incapable of standing on the solid ground and working at the tasks of men. Science, however, is not the dreams, vagaries, rash generalizations of such men. Nor do the true and genuine men of science always escape mistakes. But even their mistakes are of real utility. They show where the truth is not, and that is one step towards showing where it is. In justice to them it must ever be remembered, that man's search after truth is a perpetual wandering, and his onward progress is written on the same page of the great history as the record of human error. Science, cleared of the fancies of its weak men, and the profitable mistakes of its strong men, is knowledge—knowledge accumulated from all sources, the lucky blunder of ignorance, the inspired suggestion of genius, the careful labors of a life-time. It is knowledge tested, explained and codified in principles. It is law, causation, force. It endows man with dynamic energies that give him everywhere mastery and dominion. All the other industries seek and find in it their constant aid. The statesman-manufacturer whose name is given to this city, the best part of whose life was devoted to the promotion of the national industry, did not feel that his work was completed, until he had established a school to teach the application of science to the industrial arts. It is impossible to suppose that the systematic inculcation and diffusion of the knowledge of the demonstrated facts and principles of agriculture by means of an institution of instruction, will not give a new and invigorating impulse to the farming interests of the state.

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Science is knowledge. The love of knowledge is the characteristic of man as a rational creature. What will he not do and dare to attain it? The icy deserts of the frigid zone have no terrors for him, if he can but gain one glimpse of the open polar sea. The torrid heats, the sickly air, the savage beasts, the more savage men of tropical Africa, are but exhilarating incidents to the explorer bent on discovering the sources of the Nile. There is no process so hidden, no secret so withdrawn, no mystery of life or death, of mind or matter, so dark that it is not tried with his incessant questioning. Sickness and poverty, privation and death, he will endure to obtain knowledge. The divine hunger of his thought is never satisfied, its immortal thirst is never quenched. Knowledge to knowledge is fuel added to the flame. The desire grows with what it feeds on. Its universal sign is an unresting activity of intellect that starts a new vitality and growth in every field of human life which it touches. This is the spirit that dominates the age—a

> "spirit yearning in desire
> To follow knowledge like a sinking star
> Beyond the utmost bound of human thought."

Science too is power. How grand are its achievements! They are the pride of the race, which they exalt and ennoble. It bridges the river, it tunnels the mountain, it constructs the water-wheel, it builds the dam; the monster steam it harnesses to every burden, and sets him grinding in the mill; across continents and through roaring gulfs, it darts the articulate message; it parries the lightning stroke; it gives the landscape and the portrait from the flashing pencil of the sun; the tortures of the scalpel it turns to a peaceful dream. Among its myriad manifestations contemplate for a moment one—the brilliant demonstration of Le Verrier. Basing his calculation upon certain observed perturbations of the celestial bodies, he announces that on a given night upon the front of the heavens, there will appear a planet whose light

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is not known to have ever reached the intelligence of man. The night comes; the telescope is levelled at the point of the heavens indicated; when, at the predicted moment, up from the vast of space, out from the abyss of dark eternity, swings the shining planetary world! These are the miracles of man! They declare the power of science.

And now when science comes to the farmer and exhibiting her trophies fain would fertilize his fields, improve his crops, and herds, and increase his gains, shall he reluct and turn aside, nay rather, shall he not go forth to meet her, welcome her, crown her and prepare for her the seat in the high place of honor?

Gentlemen of the Society,—You are engaged in the honorable work of promoting the advancement of agriculture at a most interesting period. It is one of transition, and as such, is full of the buoyant expectancy of hope. That which has been accomplished by science and experiment, is justly regarded as the guaranty of still more important results. There is great encouragement in the reflection that much as has been done for agriculture by science, even at the lowest estimate, Sir Humphrey Davy, the father of agricultural chemistry, the science most relied on as an organ of progress in your pursuit, began his labors so recently as the beginning of the present century. As late as thirty years ago a constituent of the soil essential to vegetation, still remained undetected. It is only within the last thirty years, that there has been a general advancement in the art. I have not concealed what I believe to be the fact, that there is still much to be done. There is much to be done in the public economy of civilized communities to insure to agriculture the conditions of a self-sustained fertility. There is much to be done in our own commonwealth in the application of known and available resources to increase the productiveness of its soil. Whatever there is to be done, which is within the appropriate sphere of this society, it will undoubtedly do. Its action in the past, has been of the highest advantage to the agriculture of the state and the county.

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The intelligence, ability and earnestness which it now organizes, insure to it an increasing usefulness and a continuance of that public confidence it has always deserved and received. Let it enlarge the scope of its activity. Let it test its usages by the standard of the highest utility. Let it be liberal to the new thought and welcome all effective co-operation. Let it concentrate its influence upon the vital points of a true agricultural economy. Let its whole attitude bend towards the future. Progress in agriculture is slow. But the tardiness of its movement is compensated by being the ground of its pre-eminence among all the pursuits of life. For its advancement is the long-combining product of all the other arts and sciences. The ripened agriculture is the last best fruit of time. The ages labor to develope and perfect the consummate farmer, and so restore to man his Paradise.

But, fellow-citizens, our contemplations of the present and our hopes for the future are solemnized by the thought of our country and her perils. In four long years of desolating strife, felt in all our homes, her fields have been the scenes of the slow-evolving tragedy of war. It still goes on. It is a war for country, freedom and the right, assailed by petty domestic despots in arms to overthrow the government. A war for the Union. Shall it be preserved? Shall self-respecting yeomen yield to masters who insultingly deny that he who tills the soil is fit to own the soil he tills? Shall loyal owners of the land, tenacious of their rights, cleaving to the patrimony saved and transmitted by their fathers, surrender in a single inch, between the Great Lakes and the Gulf, the easements of nationality? In this great cause that seeks the judgment of the wise and just, shall Slavery prevail—the gipsy thief that claimed with brazen lies America, the child of Freedom, as her own, and yet would gleefully cut with treason's knife the sacred body in twain amid the shrieks of its true mother? Shall any power of revolt be suffered to break, or guilty compromise to unlock, the adamantine clasp with which the constitution binds these states in

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national unity, and loose them from their ordered spheres, madly to rush and tumble in the destructive tumult of a social chaos? Shall man's last hope for man go down, as though the sun should set never to rise again? These are the transcendent issues of the hour. How awful, how urgent, how irresistible are the appeals that come to every American heart! The dead hand of the past is laid upon us, and thrills us with its ghostly admonition. The multitudes that throng the coming generations turn suppliant faces towards us, and plead for a country. Everywhere, they who had faith in liberty, observing us, anxiously inquire "Can liberty corrupt a people?" And them, ah! them, the noble men who have fallen and been covered with the flag! Bear them to their rest; scatter the flowers upon their graves; bedew the turf that enfolds them with tears for patriots to their country lost; and set as on yonder sculptured stone* the enduring traces of their names. But oh! if you would give the guerdon of eternal honor, if you would build their proper monument, deep as the sea, high as the stars, finish the work they have begun; reconstitute the state, uplift with arms of strength its prostrate pillars, and on the arch of empire, ranged anew and founded on the rock of ages, grave the imperishable words, "*Liberty and Union, now and forever, one and inseparable.*" The sacred oath is on the soul of the people of America that the work is begun shall be accomplished, and the gates of hell cannot prevail against the vow.

"For Freedom's battle once begun,
o o o o o
Though baffled oft, is ever won."

Even now, hear the shouts of the soldiers, hear the shouts of the sailors, as their voices go up in joy and triumph.

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* The monument to the Massachusetts soldier, Sumner H. Needham, who was killed in Baltimore, April 19th, 1861.

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Hear the thunder of the cannon sounding unto God the doom of rebellion's last citadel.

The day of gladness is coming! Beyond the murky breaking clouds, in the glittering light behold the glorious land! Land of all gifts that nature gives to earth, of cotton, corn, and gold, and every mineral treasure, of salutary and delicious fruits, the orange, apple, peach and pear, the sacramental grape; land of deep rivers, fertile vales, and verdant slopes, and cattle on ten thousand hills; land of the forest and the prairie; land of the Mississippi, its mountain-bound, gigantic valley; land of the far-extending borders, washed by both oceans and mediterranean seas; land of the people-constituted state, in whose distributed sovereignty, local self-government is harmonized with the glory of national and continental sway; where man, and his dominion, rights, and liberty are supreme; land of the school-house and the church, the Christian's worship and the Christian's charity; enriched by all the industries, her commerce whitening with its sailing ships and darkening with its steamers all navigable waters; prosperous in peace, invincible in war, guarded by the embattled fortress and the iron fleet, illustrated by literature and science, adorned by art with pictures splendid in deeds of undying fame, with statues and memorials of her immortal men, heroes and statesmen who saved her, sages who counselled her, poets and orators who inspired her, jurists who upheld her laws and vindicated her in the great court of nations, land of the free; behold her, as she mounts to the top of the century, bearing the fortunes of a hundred proud, exultant, happy millions, and plants her radiant banner on the summit of the world. Behold her! America! your country Live for her; fight for her; die for her.

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REPORTS, &c.

The Cattle Show and Exhibition was held at Lawrence, Tuesday and Wednesday, September 27th and 28th.

PLOUGHING — WITH DOUBLE TEAMS.

Eight entries. The following awards were made:

1st premium of $10.00, to Jacob Farnham, of North Andover.

2d premium of $9.00, to Moses H. Poor and Joseph Goodrich, of West Newbury.

3d premium of $8.00, to Jaques & Little, of Newbury.

4th premium of $7.00, to G. W. Winslow, of Marblehead.

Josiah Newhall, Luther Noyes, Charles Rogers, Horace Ware, J. G. Little, Committee.

PLOUGHING — WITH SINGLE TEAMS.

Five entries. The following awards were made:

1st premium of $7.00, to Richard T. Jaquues, of Newbury.

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2d premium of $6.00, to John P. Foster, of North Andover.

3d premium of $5.00, to Oliver P. Killam, of Boxford.

J. L. Newhall, C. L. Tozier, E. P. Potter, Wm. B. Carlton, Committee.

PLOUGHING — WITH HORSES.

Seven entries. The following awards were made :

1st premium of $8.00, to M. H. Poor, of West Newbury—Hussey Plough No. 3.

2d premium of $6.00, to Moody Dole, of Georgetown—Hussey Plough No. 2.

3d premium of $3.00, to S. A. Merrill, of Salem—Lion Plough No. 61.

Rufus Slocumb, James Flint, Daniel Adams, Wm. E. Kimball, Committee.

FARM AND DRAFT HORSES.

Six horses were entered and appeared on the ground, and they all performed well. The premiums are awarded as follows :

M. C. Andrews, Lawrence, Bay Mare, weight 985 lbs., five years old, 1st premium, $8.00.

Geo. W. Annis, Methuen, Grey Horse, seven years old, weight 980 lbs , 2d premium, $6.00.

Jedediah H. Barker, Philip Yeaton, Chas. Simonds, Edward H. Little, Committee.

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WORKING OXEN AND STEERS.

Fourteen entries of Oxen, and two of Steers. The award of premiums is as follows:

1st premium of $10.00, for oxen, to David Bricket, of Haverhill.

2d premium of $8.00, for oxen, to Jacob Farnham, North Andover.

3d premium of $6.00, for oxen, to Nathaniel Little, of Newbury.

Premium of $6.00, for steers, to John P. Foster, of North Andover.

Jos. Kittredge, S. B. Swan, Richard Bray, Andrew Mansfield, Caleb Child, Committee.

BREEDING MARES.

The award of premiums is as follows:

1st premium of $10.00, to Wm. Lucy, of Bradford.

2d premium of $8.00, to Henry L. Hill, of North Andover.

Wm. Coggswell, Chairman of Committee.

COLTS.

Sixteen entries. The premiums are awarded as follows:

1st premium of $7.00, for four years old, to Jos. Chandler, of Andover.

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Premium of $6.00, for three years old, to M. C. Andrews, of Lawrence.

Premium of $5.00, for two years old, to George B. Martin, of Danvers.

Premium of $4.00, for yearling, to Amos Poor, of Haverhill.

John Keeley, Samuel K. Johnson, Paul P. Pillsbury, Geo. A. Abbott, Committee.

STEERS

The award of premiums is as follows:

1st premium, for three years old, of $6.00, to Enoch T. Northend, of Bradford.

1st premium, for two years old, of $5.00, to Geo. B. Loring, of Salem.

2d premium, for two years old, of $4.00, to Henry N. Hall, of Methuen.

Jonathan Berry, Andrew Dodge, Cyrus K. Ordway, Sherman Nelson, Committee.

HEIFERS.

Seventeen yearlings—eight two years old, and four three years old—were entered. The premiums are awarded as follows:

Three years old, 1st premium of $6.00, to Enoch T. North-

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end, of Bradford. The others were not accompanied with such statements as the rules of the Society require.

Two years old, 1st premium of $4.00, to Eben S. Poor, of South Danvers.

Two years old, 2d premium of $3.00, to A. C. Rollins, of Methuen.

Yearlings, 1st premium of $3.00, to Cyrus Blood, of Methuen.

Yearlings, 2d premium of Flint's Grasses, to Dan Weed, of North Andover.

Calves, premium of $4.00, to Eben S. Poor, of South Danvers.

John H. Caldwell, Hazen Ayer, B. A. Follansbee, Hazen Bodwell, Aaron Low, Committee.

BULLS.

The award of premiums is as follows:

1st premium of $8.00, to Willard Pike, of Andover, for his Ayrshire Bull.

1st premium of $8.00, to C. O. Cummings, of Andover, for his Grade Bull.

The Committee regret that other good bulls failed in consequence of want of pedigrees required by the Society.

Geo. B. Loring, Eben King, James P. King, Joseph Longfellow, Committee.

MILCH COWS.

Seven entries of Native or Grade, and one of Short Horn

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Cows, and only one had the written statement required by the Society. The premium is awarded as follows:

1st premium of $8.00, to Joseph S. Howe, of Methuen, for his Grade Cow.

Wm. R. Putnam, Chairman of Committee.

STATEMENT OF JOSEPH S. HOWE,

I enter for premium, one grade Durham cow, six years old. She calved May 13, and will calve again the 12th of next June.

Her milk was weighed the first ten days in June, and from Sept. 2d to Sept. 11th, inclusive, according to the appended statement. Her feed has been a common pasture, and during the severest period of drought I was obliged to feed dry hay. More recently I have fed corn-fodder morning and evening. During the latter part of the summer the feed in the pasture was very poor and dried up, and wholly insufficient for the amount of stock pastured. This accounts for the large falling off in quantity of milk, as my previous experience with the cow has proved her to be one *good* to "hold out;" and I think she shrunk no more, proportionally, than the rest of the herd.

Amount of milk produced the first ten days in June and September:

			Morn. *lbs.*	Eve. *lbs.*	Total.				Morn. *lbs.*	Eve. *lbs.*	Total.
1864.	June	1,	17½	24	41½	1864.	Sept.	2,	9	11	20
"	"	2,	18½	25¾	44¼	"	"	3,	9	11	20
"	"	3,	16¾	26	42¾	"	"	4,	9	10	19
"	"	4,	18¼	24	42¼	"	"	5,	10	10	20
"	"	5,	19	23	42	"	"	6,	10	10	20
"	"	6,	18½	23½	43	"	"	7,	10	11	21
"	"	7,	19	34½	42½	"	"	8,	9½	10½	20
"	"	8,	19½	24	43½	"	"	9,	9½	11¼	20¾
"	"	9,	18	25	43	"	"	10,	10	11¼	21¼
"	"	10,	20	23½	43½	"	"	11,	10	10	20
	Total,				428¾		Total,				202

Average weight of milk per day the first ten days in June, 42 4-5 lbs.
Average weight of milk per day the first ten days in Septem'r, 20 1-5 lbs.

Methuen, September 26, 1864.

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SWINE.

The award of premiums is as follows:

To Daniel Carlton, of North Andover, for breeding sow, 1st premium, $5 00.

To James H. Reynolds, of North Andover, for weaned pigs, 1st premium, $5.

To Oliver P. Killam, of Boxford, for weaned pigs, 2d premium, $3.00.

Henry A. King, John E. Herrick, John G. Little, John Danforth, Jr., Committee.

STATEMENT OF DANIEL CARLTON.

The breeding sow which I offer for premium was three years old the first of last July. Her pigs, which are her sixth litter, are twenty days old. At this litter she had twenty; a part of these I gave away, and she has now thirteen left. She has had eighty-two pigs, and was only seven months old when she had her first litter. Her pigs, in almost every instance, have done remarkably well, as the many persons to whom I have sold them will testify. She has always been kept on very poor feed, excepting while she was suckling her pigs. Since she had this litter she has been fed on a mixture of barley and damaged Indian meal, six quarts per day. From the time when her last litter was weaned to when she had this, she had no grain whatever, but was fed on house slops, weeds, and other refuse articles; and I think that I may safely say that the work which she performed in the barn cellar amply paid for her keeping during that time. So if we reckon the value of the sow the same now as when her last litter was weaned, the expense of raising this litter thus far will be as follows, viz:

For 1 bag of damaged meal, for which I paid	$2.50
For 1 bag of barley meal, for which I paid	3.00
For other expenses,	1.00
Total,	$6.50

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Which make these thirteen pigs cost me fifty cents each. One item in favor of these swine is that they will eat almost anything, and will thrive on the poorest of food. This, I think, is worthy of consideration, especially when grain is as high as it is now.

North Andover, Sept. 27th, 1864.

SHEEP — COARSE WOOLED.

The Committee on Coarse Wool Sheep report:

That there were but two persons who made entry for the Society's premiums, and no other persons had sheep on exhibition.

Charles Corliss, of Haverhill, entered one one year, and one two year old buck; also, five lambs, all Cotswold.

Joseph W. Trask, of Beverly,—two grade bucks, one one year, and the other four years old, both of which gave credit for the care bestowed upon them.

The Committee award the premium of five dollars to Charles Corliss, of Haverhill, for his one year old Cotswold buck, Niagara, and the premium of Harris' Work on Insects Injurious to Vegetation, for his flock of five Cotswold lambs.

The Committee were surprised at the smallness of the show of sheep. They had supposed there was a growing interest in this class of husbandry, not only in Vermont, Maine and New Hampshire, but in our own State and county. If the show is taken as an index of the fact, they were mistaken.

It would seem needless, at the present price of meat and wool, for us to say anything to urge the farmers of Essex County to keep sheep. We are satisfied that all who have kept a flock as part of their stock are convinced that it is the best paying of their farming operations in dollars and cents;

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and the profit does not stop here. Look over our pastures through the length and breadth of the State — bushy, rocky, uneven and hilly, most of them unfit for cultivation — and it would seem, by the constant cropping they have sustained, that they have nearly come to the end of their capacity to bear grass. In proof of this we see the woods are taking possession of them in all places remote from villages and dense populations. In the older cleared portions, where there has been but a small quantity of foreign manure applied (we mean by this manure not made on the farm), it has become necessary to give milch cows ground bones, or they become poor and stiff, and in some instances have lost the use of their limbs beyond remedy.

Many of the owners of these pastures have not the fertilizers on hand and are not able to procure them in sufficient quantities to make a permanent improvement on them. But we have the lands. What is the remedy? Nature, ever kind, ever faithful to herself, will restore them if we do not interfere, by a growth of wood; and we believe that sheep kept in these pastures will do the same thing. The first process is a long one, beyond the lives of one, perhaps of two generations. The second is shorter, and the length will depend much on the manner in which the flock is kept. We are quite sure lands can be so restored, for the best of reasons, that we have seen instances where it has been done. We think that the quickest and most permanent method would be to stock the pastures fully, and to feed the flock in addition with grain or oil meal. If the pasture is fully stocked we are sure it will be certain death to most of the bushes and briars which may infest it.

The question whether coarse or fine wool sheep are best adapted to the county seems to be disputed, and it is probable ever will be, considering the diversity in our soil and the difference in management of different individuals. It is contended that the small Merino, with its compact frame, is best adapted to our sterile pastures, that it returns a larger amount

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of finer wool for weight of carcass, and that it can be kept at less expense per pound than can the larger breeds. On the other hand, those who claim that the larger varieties are most profitable, contend that they are most prolific, giving one hundred and fifty per cent. of lambs where the Merino will give but seventy-five — that they shear more wool, worth nearly as much per pound at the present time, and that the cost of keeping is but a trifle more for a coarse than for a fine wool sheep. But we will not go into a discussion of the merits of the different breeds. We hope that the farmers of Essex will try some kind as part of their stock, and will not only show us specimens of their flocks but will also give us an account of their success, with details of their management, and their profit and loss, at the next show.

Francis Dodge, James Carr, Jesse Smith, Warren Moody, Committee.

SHEEP — FINE WOOLED.

The Committee on Fine Wooled Sheep report:

One flock of ten Merino sheep entered by Alfred L. Moore, of West Newbury, and the Committee award him the premium of $5.00 for his flock.

George B. Loring, of Salem, entered two Merino ewes, nine Merino lambs, and one yearling Merino ram. We award him the premium of $5.00 for his ram, and the premium of "Harris' Insects" for his lot of lambs

Charles Corliss, Joshua N. Kent, Paul D. Patch, Committee.

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POULTRY.

The Committee on Poultry report:

There were but ten entries, much less than in former years, and the display of pure or well bred fowls was very small. The Brahma fowls exhibited were fine, and displayed careful breeding from well selected stock birds. A fine coop of Leghorn fowls attracted much attention, but the Committee did not think favorably of this breed for farmers' use, as they are tender in rearing and of inferior size and quality for market fowls. The fine display of Fantailed Pigeons exhibited by I. A. Allen, of Lawrence, was much admired. The Committee, "with the limited amount of money at their disposal to award in this valuable branch of the farmers' interest," have, after a careful examination, awarded gratuities as follows:

To John S. Ives, of Salem, for coop of Brahma chickens, $4.00.

John Swinerton, of Danvers, for Brahma fowls, one copy Harris' Insects, and $1.00.

I. A. Allen, of Lawrence, for Fancy pigeons, 50 cents.

Robert Buxton, of South Danvers, for Leghorn fowls, 50 cents; for Brahma fowls, $4.00.

John S. Ives, for the Committee.

DAIRY.

The Committee on Dairy would report:

That there were seventeen entries of butter, the most of which did credit to the exhibitors. The premiums were awarded as follows:

To Lot No. 2—Sarah L. Ridgway, of West Newbury, 1st premium, $8.00.

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To Lot No. 1—Jonathan Berry, of Middleton, 2d premium, $6.00.

To Lot No. 16—Sarah J. Searle, of Methuen, 3d premium, Harris' Insects.

There were three exhibitors of cheese, to whom premiums are awarded as follows:

To Lot No. 2—Daniel Silloway, of West Newbury, 1st premium, $8.00.

To Lot No. 3—D. P. Nelson, of West Newbury, 2d premium, $6.00.

To Lot No. 1—Sarah L. Ridgway, of West Newbury, 3d premium, Harris' Insects.

Your Committee regret very much that there was no application for premium in the third and fourth departments, under the head of "Dairy." We regard inquiry in relation to these two subjects — quantity of milk produced, and the value of milk for butter — as of special importance to the farmers of this county. Every farmer may have an OPINION as to the amount of milk his cows give in a year, and also how many quarts of his milk it will take for a pound of butter; but very few *know* from trial what their cows average, or what is the general quality of the milk.

There is far too little knowledge of the cost of keeping our cows and the best manner of keeping them, especially among those farmers who furnish milk for the market. The production of milk is fast becoming one of the leading agricultural interests of the county. The rise and increase of manufacturing cities and villages have created a large demand for milk; and, as the population increases, the production of butter will become less and the quantity of milk raised for market greater. This change in dairy farming calls for a change in the kind of stock, and in its management. Cows that are profitable for butter will, perhaps, hardly pay the expense of keeping at the wholesale price of milk; and the reverse is equally true.

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We need careful and repeated experiments to show us what breed is *best for our purpose*, and how cows should be kept to secure the largest return at the least outlay. In old butter-making times but little butter was made in the winter, and the cows would thrive better that season on the hay and other fodder produced by the farmer. But the milk-producer must keep his quantity of milk in winter nearly equal to that of summer; consequently he must bestow extra care, and must use considerable extra feed. The kind, quantity and manner of using this extra feed is unsettled, and opinions among practical farmers vary much. The only way to settle these matters is by careful, patient experiment. And then how little is known of the amount of milk our cows produce. One man tells you cows generally do not average more than five quarts per day; another thinks a cow very poor if she will not average *eight* on like keeping. Perhaps it may not be out of place here to state the result of a trial made by the Chairman of your Committee a year or two since.

The object was to ascertain how much an average cow would give, on fair keeping, and how much difference there was between such a cow and the best. Accordingly three cows were selected which had been kept upon the place several seasons, and whose qualities were therefore known, and which calved, as nearly as possible, at the same time. No. 1 was a cow that had always been considered a FAIR milker; No. 2 was one of the best, — both natives; No. 3 was a grade Ayrshire.

No. 1 calved April 12th, and the 22d of the next March.
No. 2 calved April 25th, and the 19th of the next April.
No. 3 calved June 10th, and the 21st of the next June.

The milk was measured carefully every Wednesday, and the amount reckoned an average for the week. The following was the result:

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	Amount of Milk.			Quarts per day.		
	1	2	3	1	2	3
	qts.	*qts.*	*qts.*			
April.	171	47	000	9	9 1-2	
May.	314	345	000	10 1-8	11 1-8	
June.	308	406	345	19 1-4	13 1-2	18
July.	290	320	427	9 1-3	10 1-3	13 4-5
Aug.	273	305	395	8 5-6	9 5-6	12 5-6
Sept.	231	298	334	7 2-3	10	11 1-6
Oct.	194	279	357	6 1-4	9	11 1-2
Nov.	171	259	296	5 2-3	8 2-3	9 7-8
Dec.	104	247	310	3 1-3	8	10
Jan.	46	250	326	2	8	10 1-2
Feb.		190	295		6 5-6	10 1-2
March.		54	270		3	8 2-3
April.			169			5 2-3
May.			41			3
Total.	2102	3000	3565			

Average amount per day during whole time:—No. 1, 6.2; No. 2, 8.5; No. 3, 9.4. The milk was sold at wholesale and actually brought,—No. 1, $52.47; No. 2, $79.71; No. 3, $97.57. The keeping in each case was precisely alike and consisted of a few roots or shorts, with as much hay and other fodder as they would eat;—during the summer months nothing but good pasture. It was thought at the time that Cow No. 1 barely paid the cost of keeping and a fair interest on her market value. Taking this for granted, then No. 3 paid a profit over cost of keeping—sufficient to buy a good cow at that time.

Dr. Loomis, in a paper published in the Patent Office Report of 1861, estimates the average annual amount of milk produced over a large extent of territory, at only 1800 quarts per cow. If this is correct, or even if 2100 quarts per year be the average, then it follows that many farmers are making milk at little or no profit. It also follows that, with better stock, the same expense in keeping will yield a larger return than in almost any other branch of agriculture. Doubtless it is practically impossible for all to obtain extra cows; but when farmers are convinced that they cannot afford to keep a medium cow, the demand for better stock will increase, and the supply will increase with the demand. Another impor-

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tant consideration is, that every part of this county is so near a market that all kinds of fodder fit for cattle will always command their value in money. Hence there is no *necessity* for keeping stock to eat up our fodder, as there is in towns farther back. The kind and amount of food most economical and suitable for milch cows during winter, is a matter scarcely less important to the milk producer than the kind of stock.

The whole subject affords a wide field for investigation and experiment, and we hope that next year some of our farmers will *observe* and *make note* of what they are doing, not only for their own but the public good.

Joseph S. Howe, for the Committee.

STATEMENT OF SARAH L. RIDGWAY.

I present for premium three cheeses made as follows:

The milk was strained into the tub as soon as brought in. In the morning the cream on the night's milk was stirred in, and a part of it warmed and set with rennet sufficient to form the curd. In one hour the curd was cut, drained and scalded, then ground and salted to the taste, and pressed about two days.

STATEMENT OF D. P. NELSON.

I present for your inspection four new milk cheeses, one of which is sage. Each cheese contains the milk of four days. The manner of making is as follows:

Strain the milk into a tub as soon as drawn from the cows at night; add rennet in sufficient strength to form a curd in an hour; slice it and let it remain in the tub until morning; repeat this process with the morning's milk; scald the curds with water, drain thoroughly and grind fine; salt with Liver-

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pool salt, allowing half an ounce to a pound of curd, and press twenty-four hours.

STATEMENT OF DANIEL SILLOWAY.

The cheeses that I present for your inspection and premium were made in the following manner:

The milk is strained into a tub as soon as drawn from the cows, with a sufficient quantity of rennet to bring a curd, which will require about an hour; then slice the curd and let it stand till morning, and treat the morning's milk in the same manner; then slice and drain the curd and warm it with hot water and grind in a curd mill; salt with blown salt, half an ounce to the pound of curd, and press twenty-four hours, turning two or three times.

The cheeses are an average lot of fifty-four cheeses made in fifty-four days, with the milk of eight cows.

STATEMENT OF SARAH J. SEARLE.

The milk for this butter was kept in the cellar and skimmed the third day, adding salt to the cream when first skimmed. We churned the sixth day, working the butter without washing. One ounce of salt is added to a pound of butter, and it is worked into lumps as presented. We use Davis' churn.

STATEMENT OF JONATHAN BERRY.

I present for your inspection sixteen pounds of September butter, made in the following manner:

The milk is strained into pans and placed in a cool cellar,

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to stand from twenty-four to thirty-six hours; it is then skimmed into tin pails and stirred once a day for four days, when it is churned, washed in cold water, and salted — one ounce of rock salt to the pound. After standing from six to eight hours it is worked over and left until the next morning, when it is again worked into lumps as presented.

STATEMENT OF SARAH L. RIDGWAY.

I enter for premium fifteen pounds of September butter, made in the following manner:

The milk was strained into tin pans and allowed to remain thirty-six hours in a ventilated cellar; then it was skimmed into tin pails, and stirred morning and evening for three days. When churned, the butter was immediately rinsed in cold water and salted to the taste with rock-salt; then set away in the cellar until evening, when it was worked with the hands, and in the morning worked again and made into balls as presented.

BREAD AND HONEY.

Fourteen specimens of Bread and two of Honey were entered. Our examination of bread, with a view to gratuities, was restricted to five specimens, the other nine being accompanied by no statement of the process of making, as the rule of the Society requires. We award to Miss L. Jane Kimball, of Boxford, for the best (statement) bread, $2.00

To No. 1—no name,	1.00
" Mrs. Jane Bailey, of Andover,	1.00
" Mary Curtin, of Lawrence,	1.00
" Mrs. M. S. West, of Haverhill,	1.00

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Miss M. A. Poor, of Lawrence, presented four loaves of bread, beautiful to the eye and sweet to the taste, but unfortunately no statement appeared. The same should be said of a beautiful loaf of Brown Bread, exhibited by Mary A. Smith, of Methuen.

HONEY.

To John F. Kimball, of Boxford, 1 box of honey,	$2.00
" T. J. Goodrich, of Haverhill, 4 boxes of honey,	1.00

STATEMENT OF MISS L. JANE KIMBALL.

The loaf bread offered for premium was made in the following manner:

About seven pounds of sifted flour are taken, with two-thirds of a tea-cup of hop yeast, and thoroughly mixed with warm milk; no other ingredients are added. The mass is left to rise in a warm room, usually from twelve to sixteen hours. When well risen, it is baked in tins, in a moderately quick oven, about one hour. The above amount will make three loaves of bread, of about the size of the one presented.

The following statement, with one loaf of bread, was entered as No. 1, no name appearing:

Recipe.—Make a small batter of flour and hot water (nearly boiling,) and one-half a teaspoonful of salt, one-half a teaspoonful of sugar. Set it in a warm place to rise (about six hours;) then add one quart more of warm water, and flour to make a stiff batter; rise again (about one hour,) after which knead it and put it in the pans; rise again and bake.

STATEMENT OF MARY CURTIN.

To one quart of flour, wet with milk and water one-half

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each, add one-half a teacup of potatoe yeast. Let it rise about six hours; then knead it; then let it rise three hours longer; then knead it again; put in baking pans; let it rise about half an hour; then bake.

STATEMENT OF MRS. M. S. WEST.

YEAST.—Two large potatoes, pared and boiled in two quarts of water until they mash easily in the water; one handful of hops (a small quantity;) boil until the hops do not float on the surface; then strain the boiling liquor; add half a pint of flour and two teaspoonsful of brown sugar, stirring carefully; when lukewarm, add half a cup of yeast.

BREAD.—To two quarts of milk, add two cups of yeast and two spoonsful of salt; mix to a stiff batter, and let it rise over night; in the morning add sufficient flour to make into loaves, kneading thoroughly; let the loaves rise again before baking;—but they must be carefully watched, lest they pass into the stage of acetous fermentation. If they should, they must be taken out of the pans and a little soda, or saleratus, added to correct the acidity; but it should be avoided, if possible. If large loaves, bake an hour and a quarter.

Your Committee were pleased to see the evidence of the nterest taken in the Bread Department, but they regret that so many neglected to furnish a statement of the process of making. From the specimens before us, we infer that there is a laudable ambition among the ladies of our county to excel in making bread; and this certainly is zeal in the right direction, for we consider poor bread one of the most unhealthy articles that can be put into the human stomach. We have seen bread on the table, hard, heavy, dark, waxy, and tough,

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colored green throughout with saleratus. We never see persons making a feed (it cannot be a meal) on such indigestible stuff but visions of dyspepsia, nightmare, and work for the dentist come up before us; for it is now admitted by all that nothing destroys the enamel of teeth like saleratus taken into the stomach. Yet we have heard people who daily eat bread made green by saleratus, cursing the doctor, who, in a case of sickness years ago, gave them a dose of calomel and destroyed their teeth.

We once heard a lady, who took pride in her cooking, assert that to have good bread it must rise till it was thoroughly sour, then add saleratus till it was sweet; that would make nice bread. It was suggested that it could be soured with cream of tartar. Ah! no; she knew better; she wanted the natural sour. We could never imagine why people who use cream of tartar to sour their dough, do not buy sour flour as a matter of economy; it can be bought less, and would save buying cream of tartar. We do not see why the same result could not be obtained. We wish every family in this country (rebels included) could have, daily, as good bread as the poorest specimen offered for our inspection;—although we suppose some persons, who have been used to eating bread of the brickbat sort, would not relish decent bread, because the taste gets so depraved they could not recognize good bread when they eat it. This ought not so to be; for of all the various kinds of ailment to which civilized man has had recourse during our historical period, none have been so universally employed as bread.

Like most arts of primary importance, the invention of bread undoubtedly long preceded its history, which is involved in the usual obscurity of early times. The Greeks ascribe the introduction of agriculture to Ceres, and the invention of bread to Pan; but we know that the Chaldeans and Egyptians were acquainted with these arts at an earlier period. "And Abraham hastened into the tent to Sarah and said, make ready quickly three measures of fine meal, knead it and make cakes

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upon the hearth." There is reason to think, from some of the ancient writers, that the art of fermenting bread with yeast was known eighteen hundred years ago. Yet it was not common in Europe till within two hundred years. In 1688, the French government prohibited the use of yeast in making bread under a severe penalty, in consequence of the representation of a college of physicians, who declared it to be injurious to health. But the superiority of yeast bread soon became apparent; the decisions of the medical faculty were forgotten; the laws were allowed to sink into oblivion, and the new mode of making bread soon found its way to other countries. The primitive mode of making bread is still preserved among the Arabs of the desert, who, as Niebuhr informs us, "lay cakes of dough in the coals, covering them with ashes till they are done, when they eat them warm." In the northern counties of England, in Scotland and in Wales, unfermented bread is mostly used among the poorer classes. In Scotland it is baked in thin cakes, dried hard on racks, and kept for months. Not having been used to saleratus in their bread, the people there are able to operate on these cakes with their teeth, which the inhabitants of some localities we know would not be able to do.

Unfermented bread may be flaky, but it is never porous or spongy. As a general rule, it is not so wholesome, not being so digestible as fermented bread; but we believe, notwithstanding this, it would be better than the tough, clammy, sour, alkaline stuff which some people call fermented bread — and it is certainly time that every female, in our county at least, should know how to make good fermented bread; and we know no easier way to impart this knowledge and scatter it broadcast among the people, than for our Society to offer premiums, require a statement, have them published; then those that run may read, and those that read may know how to make good bread. Then again, our Society may become popular by these same exhibitions of bread.

Some of the loaves offered for our inspection were very

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beautiful, and were made by an unmarried lady. Before we had finished our examination a young gentleman praised the bread very much, and said he would certainly visit the lady before he went home. Now, if this visit should result in marriage, or if any exhibition of bread hereafter should have such results (and nothing can be more probable,) we may feel that where a man gets a good wife, or vice versa, they would be decided friends of the Society.

In the Honey Department we were disappointed to find but two specimens offered. Your Committee were unanimous in the opinion that our county ought to make a better show of honey than this. We should have been gratified to have seen, instead of two, twenty specimens of honey, with statements by the owner of the number of his hives, the amount of honey made by each, the number of swarms (natural or artificial) added the past season, with other facts calculated to give information and awaken an interest on this subject. The past season has been an unfavorable one for natural swarms. As very often happens, bees near the sea were taken all aback by the prevalence of chilling northeasterly winds,

> "which sweeping from the ice,
> And winnowing the fogs of Labrador,
> Shed their cold blight round Massachusetts Bay,
> With the same breath which stirs Spring's opening leaves
> And lifts her half-formed flower-bell on its stem,
> Poisoning our sea-side atmosphere," *(Whittier)*

just as they were preparing to swarm; and as the result, we hear from all the county no swarms this season. But the season has been a good one for honey. The drought which prevailed throughout the Northern States made a good honey season, as there is a larger amount of sweets in, or on, the flowers during dry weather than wet. We say in, or on, as many bee keepers argue that bees never obtain honey produced by flowers; or, in other words, that honey is deposited

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on the flowers and leaves of plants from the atmosphere, or by insects. It is well known that the Aphis, or plant louse, deposites honey dew in abundance on the plants which it frequents. Bees certainly obtain a large amount of honey from this source, and it is probably the same substance which was gathered by the Israelites under the name of Manna. Bevan says it is found chiefly on the oak, elm, maple, plane, sycamore, lime, hazle and blackberry, — sometimes on the cherry, currant, etc. The oak generally affords the largest quantity, and when it is abundant the happy humming of the bees may be heard at a great distance.

"Nor scorn ye now, fond elves, the foliage sear,
When the light Aphis, armed with puny spear,
Probe each emulgent vein, till bright below,
Like falling stars, clear drops of nectar flow." *Evans.*

It is amusing, to a person acquainted with bees, to see or hear some statements which have been made in regard to them. For instance a writer in the New York Tribune, a year or two since, after describing a common box hive, which he recommends, says a stock of fifty swarms, in the spring, WILL produce 2000 pounds of honey, and increase to one hundred swarms in autumn. Now, what a chance to make money! Suppose a swarm to be worth ten dollars in the spring, we get forty pounds of honey, which at present is worth $16.00
New swarm, 10.00
Old swarm, 10.00
Giving us for $10.00 invested in the spring, $36.00 in autumn.

Perhaps a good swarm, in a favorable season, may have done this, but we apprehend such cases are as rare as cows that give thirty quarts per day, or horses that make a mile in 2.40; but this writer says this WILL be the result. We are aware that bee keeping can be made profitable, but there is no reason in making such extravagant assertions as this. The

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same writer says—"Movable frame hives may be made without buying a patent, by making a chest of the capacity of one bushel, say fifteen inches square inside, and make ten frames of strips of board an inch and a half wide, nailed together flatwise at the ends, so as to form sashes that will set in the box and just fill it; bore holes for the entrance of the bees through the sides of the box and frames; the lid of the chest shuts tight and may be locked. When you wish to draw a frame, insert a common wood screw or two to pull it out by. You can tell, as you lift it, whether it is full or not; if not, try another."

Now, if this writer knew any more about bees than a wild bushman knows of algebra, he must have written this purposely to deceive. It will be noticed that the hive is fifteen inches in the clear, ten frames one and a half inches will just fill it, making a solid lining for the hive. Any one who ever saw the inside of a hive knows that bees, in such a hive, would never build their combs, each in a separate frame. They might possibly build them across the hive from side to side; but, in ninety-nine cases in a hundred, they would build them diagonally from one corner to the opposite. We should suppose it would require not only one screw but a number, and those powerful ones, to lift one of the frames after the bees had possession, as they fill with propolis every joint and crevice in the hive.

We have alluded to these cases of false information, simply because we have known instances of people putting in practice some of these absurd theories, and, having failed (as any intelligent bee keeper would have known at the start,) condemn all improved hives and give up bee keeping, or return to the old method of destroying the bees with sulphur; and if any person keeping bees wilfully shuts his eyes and refuses to learn from his own experience and that of others how to manage bees, we think destroying his weaker swarms in the fall is about the best for himself and bees, which he can do. He would then save his best, and of course his strongest

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swarms, and over the graves of his victims he might put the German epitah:

Here Rests,
cut off from useful labor,
a colony of
INDUSTRIOUS BEES,
Basely Murdered
By their
Ungrateful and Ignorant Owner.

Who could suffocate the busy bee after reading from Thompson's seasons?

"Ah, see, where robbed and murdered in that pit
Lies the still heaving hive! at evening snatched,
Beneath the cloud of guilt-concealing night,
And fixed o'er sulphur! while, not dreaming ill,
The happy people, in their waxen cells,
Sat tending public cares.
Sudden the dark, oppressive steam ascends,
And, used to milder scents, the tender race,
By thousands, tumble from the honied dome
Into a gulf of blue sulphureous flame!"

In our report last year, we remarked that our experience was, that when bees clustered on the outside of the hive, we should not expect them to swarm. This was so contrary to all we had heard or read on the subject that we hesitated about advancing it; but we have since seen, in a book published in London in 1726, the same idea advanced. This writer says: "For when the bees have once taken to lie without, the hive will always seem empty, and they will have no mind to swarm." He recommends placing a large pewter charger under them to reflect the sun so as to drive them into the hive; probably a looking-glass would do better.

In regard to hiving a swarm — What is the process? we are often asked. We will give our method, but first we will relate what we saw within a few years. We were riding one day and heard one of the most unearthly dins which ever

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saluted mortal ears. On nearing the place we found it proceeded from tin pans, tin pails, brass kettles, warming pan, and in the hands of apparently a whole family, because the "bees were swarming." By this time the bees had settled on a tree some four feet from the ground. Two men, with stakes and pitch-forks, propped up the limb on which the bees had settled (the noise all the time continuing;) then mounted on barrels, with a crosscut saw they proceeded to saw off the limb, laying it, with what bees had not been jarred off, on the ground, placing the hive over the bees and leaving them to go up, which sometimes they will not do. Our experience is, the less noise made when bees are swarming, the better. The custom of making a noise when bees are swarming, originated in this way: In the Eastern countries, where almost every cottager kept bees, it was the custom, when a swarm was up, for the owner to make a noise (tanging,) to give notice to his neighbors that it was his swarm; and if it settled on their land he could claim them, if he could prove he "tanged" them.

Our method of hiving a swarm is this: When we perceive a swarm rising, we sit down and wait till they settle, which ours have invariably done near the hive. We then, with as little noise as possible, place a hive near them, within three feet; we then fasten a sheet, or any cotton cloth, one edge to the alighting board or entrance of the hive, and fasten the opposite edge of the cloth, so as to come in contact with the under side of the cluster, — if it can be gathered up around the side of the cluster opposite to the hive so much the better, — we then take a few bees from the cluster and strew them gently along to the hive. The news is immediately telegraphed along the line that they have found a home, and the whole cluster are quickly in motion, striving to outrun each other in the race for a home. The hive should be about on a level with the bees, and the nearer the better, unless you wish to see the queen, in which case you must place it so far that you will have time to see every bee. Of course, if the

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bees settle on a high tree, this plan will not answer. I have used it fifteen feet from the ground by placing two ladders and laying a board between them and placing the hive on the board. Some plan can be devised to get at them at any reasonable height, and will be found much better than sawing off limbs of valuable trees.

Persons who handle bees should have some protection for the face, in case of accidents; and besides, it gives the operator confidence. Langstroth's bee-hat is the best we have seen. To make it, take a piece of wire cloth, one foot wide and two and one half feet long (just fine enough to keep out bees;) sew the ends together; sew in one end of the cylinder a piece of cloth or leather for a crown; around the other end, sew a piece of cloth a foot wide, for a cape; when it is used, let the lower edge rest on the shoulders, tuck the cape inside the coat or jacket, and your face will be safe among any quantity of bees. Perhaps some people will prefer to wear gloves; if so, rubber gloves answer a good purpose. But we prefer to handle them with bare hands. Sometimes, by accidentally squeezing a bee, we get a sting, but, for our consolation, it is generally believed "that the more we are stung the less we shall feel it." Some people are not poisoned at all by a sting. A friend of ours, who has kept bees, tells us stinging has no effect on him, causing no swelling and no inconvenience. The best remedy we know for the sting of a bee is the do-nothing policy. We have tried many remedies, and have come to the conclusion that it is the best to let it alone. After extracting the sting, perhaps pouring a little cold water on the part stung might be a benefit; but the slightest friction or rubbing on the part will cause inflammation and swelling.

We hope hereafter to see statements from the twenty or thirty competitors for gratuities, which will give us facts and the experience of bee-keepers from all parts of the county. This will awaken an interest in the subject, and we shall be progressing on to the "good time coming," when every farmer will keep bees, and his better-half will know how to

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make good bread, and our county will be literally a land of good bread and honey.

Respectfully submitted, — Edmund Smith, Chairman.

FARM IMPLEMENTS.

The Committee on Farm Implements report:

That the number of articles entered in their department is 80, and of these, we regret to say, but few were furnished by residents of our county. For the large balance we are indebted chiefly to Parker, Gannet & Co., and Whittemore, Belcher & Co., of Boston. The following gratuities are awarded:

To Amos Poor, Jr, of West Newbury, for Union Mower, Whitcomb's Wheel Horse Rake, and Granite State Corn Sheller, $6.00.

To Whittemore, Belcher & Co., of Boston, for Ploughs, Clothes Washer and Wringer, Horse Pitch Fork, Carriage Jack, and Root Cutter, $5.50.

To Parker, Gannet & Osgood, of Boston, for Hay Tedder, Hay Cutter, Bailey's Washing and Wringing Machine, and Horse Pitch Fork, $4.50.

To Abraham Patch, of Danvers, for Water Drawer, $1.00.

To H. W Headon, of Haverhill, for Washing and Wringing Machine, $1.00.

To A. S. Bunker, of Lawrence, for eight Pumps, $1.00.

To Saunders & Basford, of Boston, for Clothes Dryer, 50 cts.

To Luther Thayer, of Brighton, for Feed Cutter, 50 cts.

David Choate, Hiram Rogers, J. Austin Lunt, John T. Wood, Committee.

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ARTICLES MANUFACTURED FROM LEATHER.

The Committee on Articles Manufactured from Leather report but seven entries for premium in this department, and award the following premiums and gratuities, viz:

To Robinson & Cusick of Lawrence, for the best pair of Men's Calf Skin Boots, $4.00.

To J. A. Ames, of Lawrence, for the best pair of Men's Thick Boots, $4.00.

To C. Stickney, of Groveland, for the best pair of Ladies' Walking Shoes, $2.00.

To J. A. Ames, of Lawrence, for a show case of Assorted Shoes, of fine workmanship, a gratuity of $3.00.

To Moses How, of Haverhill, for a show case of Ladies' Shoes, of extra workmanship, a gratuity of $3.00.

To Eben W. Jewett, of Georgetown, for specimens of Sole Leather cut into soles, being of very extra quality, — tanned by Upton & Nichols, of Boston, — a gratuity of $2.00.

To Edward Page & Co., of Lawrence, for Leather Belting, a gratuity of $5.00.

To W. B. Hayden & Co., of Lawrence, for Artificial Leather and Patent Felt Inner Soles, which, in the opinion of the Committee, are equal, if not superior to Cork Soles, a gratuity of $2.00.

Lewis Allen, Chairman.

PEARS.

The Committee on Pears report:

There were a great many entries made. Some plates were very fine and others but ordinary. We award, for the best 12 specimens of the following varieties, a premium of $1.00 each:

J. V. Stevens, South Danvers, Gansel's Bergamot, Louise

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Bonne de Jersey, Beurre D'Anjou, Glout Morceau, Fulton; Sumner Southwick, South Danvers, Belle Lucrative, Vicar of Winkfield, Winter Nelis, Buffum; M. H. Roberts, So. Danvers, Beurre Bosc; Geo. L. Hodgkins, Salem, Bezi de la Mott; Peter Wait, Danvers, Flemish Beauty; E. Gage, Bradford, Duchess; Benj. P. Ware, Marblehead, Beurre Clairgeau; J. P. Battles, Lawrence, Beurre Diel, Beurre Boussock, Lawrence; Parsons Ordway, N. Port, Seckel; E. P. Currier, Lawrence, Bartlett; Eleazer Lake, Topsfield, Black Pear of Worcester.

GRATUITIES OF FIFTY CENTS EACH.

To Geo. L. Hodgkins, Salem; E. Gage, Bradford; J. P. Battles, Lawrence; Hiram Plummer, South Danvers; Wm. Chickering, Joseph Farnum, Andover; Daniel Saunders, Lawrence, and Geo. L. Davis, of Andover.

J. R. Langley, E. S. Williams, W. D. Lamb, Wm. Chickering, G. W. Hills, Committee.

APPLES.

The Committee on Apples make the following awards. For the best 12 specimens of the following varieties, a premium of $1.00 each:

E. Lake, Topsfield, Yellow Bell Flower, Pickman Pippin, Hubardston Nonsuch, Haskell Sweet; N. Bodwell, Boxford, Porter; A. A. Farr, Methuen, Baldwin; Benjamin P. Ware, Marblehead, Ribston Pippin, Danvers Sweet, Sweet Baldwin, Drap D'Or, Lyscom, Ben Apple; Peter Wait, Danvers, Hunt's Russett; J. S. Howe, Methuen, Seaver Sweet, Roxbury Russett; Abner Hosmer, Lawrence, Gravenstein; James Flint, Middleton, Minister; J. D. Sargent, Amesbury,

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Fameuse; Alfred Ordway, Bradford, R. I. Greening; Nath'l Annable, South Danvers, Fall Harvey; A. M. Bodwell, Lawrence, Green Sweet; Eben Marsh, Methuen, Detroit; Aaron Lowe, Essex, Fall Pippin, Northern Spy.

Best exhibition of apples by one individual, B. P. Ware, Marblehead, Harris' Insects; a gratuity of one dollar each to Rev. Geo. Packard, Lawrence; E. Lake, Topsfield; Peter Wait, Danvers; J. S. Howe, Methuen; H. & J. M. Perry, Danvers; D. T. Morrison, Methuen; Alfred Ordway, Bradford; Geo. L. Davis, North Andover.

Warren Ordway, Chairman.

PEACHES, GRAPES AND ASSORTED FRUITS.

The Committee award the following premiums and gratuities:

F. W. Nichols, Lynn, best variety White Peach, $1.00; Ebenezer Parker, Lawrence, best variety Yellow do., $1.00; D. A. Pettingill, Topsfield, best variety Seedling do., $1.00; W. C. Chapin, Lawrence, best variety Peaches in pots, $1.00; Nelson Bodwell, Boxford, best assorted Fruit, $3.00; Peter Wait, Danvers, second best assorted Fruit, $2.00; G. W. Gage, Methuen, best Concord grapes, $1.00; T. N. Curtiss, South Danvers, best Isabella do., $1.00; F. W. Nichols, Lynn, best Hartford Prolific do., $1.00; G. W. Gage, Methuen, best Delaware do., $1.00; E. Burbank, Lawrence, best Diana do., $1.00; C. H. Pinkham, Salem, best Rogers' Hybrid No. 15 do., $2 00; G. W. Gage, Methuen, best Allen's Hybrid County Seedling do., $1.00.

GRATUITIES.

E. Gage, Bradford, $2 00; J. P. Battles, Lawrence, $1.00;

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Aaron Lowe, Essex, 75 cents; W. C. Chapin, Lawrence, 50 cents; Sumner Southwick, South Danvers, 50 cents; all for best Cold House Grapes. T. E. Whiting, Lawrence, Grapes in Pots, 75 cents; Joseph Farnum, North Andover, greatest variety out door grapes, 75 cents; G. W. Gage, Methuen, second do., 50 cents; T. C. Thurlow, West Newbury, Adirondac do, $1.00; Mrs. J. F. C. Hayes, Lawrence, Preserved Peaches and Domestic Wine, $1.00; J. B. Howard, Lawrence, Domestic Wines, $1.00; Mrs. J. H. Perkins, Lynnfield, do., 50 cents.

E. G. Kelley, Andrew Nichols, F. W. Nichols, Committee.

FLOWERS.

The Committee on Flowers report:

For the best pair of Parlor Bouquets, to C. E. Downs, of Bradford, $2.00.

For the best pair of Hand Bouquets, to John Dove, of Andover, $2.00.

For the best Floral Designs, to George L, Davis, of Andover, $3.00.

For the best 12 Dahlias, to Geo. L. Davis, of Andover, $1.00.

For the best 12 Verbenas, to Mrs. J. K. Barker, of Lawrence, $1.00.

For the best Bouquet of Wild Flowers, to Isabella S. Parker, of Groveland, $1.00.

For largest and best display from one individual, Mrs. W. Barbour, of Lawrence, $2 00.

For Wild or Native Flowers, to Lorenzo Hardy, of Groveland, a gratuity of $1.00.

For Native Flowers, to C. E. Downs, of Bradford, a gratuity of $1.00.

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For best single Parlor Bouquet, to Mrs. W. Barbour, of Lawrence, a gratuity of $1.00.

For Wild Flowers, to Mrs. Parker, of Groveland, a gratuity of 50 cents.

For basket of Flowers, to Miss Carlton, of Lawrence, a gratuity of $1.00.

For Bouquet, to Miss Ann M. Hardy, of Groveland, a gratuity of 50 cents.

For Plants and Flowers, to W. C. Chapin, of Lawrence, a gratuity of $2.00.

For lot of Dahlias, to H. Nourse, of Lawrence, a gratuity of 50 cents.

For Century Plant, to C. E. Downs, of Bradford, a gratuity of 50 cents.

For Geranium, to C. O. Fosdick, of Lawrence, a gratuity of 50 cents.

For Plants, to M. A. Woods, of Lawrence, a gratuity of 50 cents.

For Banana Plant, to W. C. Chapin, of Lawrence, a gratuity of $1.00.

W. Barbour, B. R. Downs, D. H. Stickney, C. M. Tracy, J. I. Ladd, Committee.

VEGETABLES.

The Committee on Vegetables make the following report:

Notwithstanding the almost unprecedented drought of the past summer, the display of vegetables was creditable to the county — proving that New England soil, even under adverse circumstances of weather, may be compelled to yield excellent, if not the largest and finest specimens of vegetables, both for the table and the stall.

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Forty-seven persons, from different parts of the county, entered the products of their gardens and fields, — nearly all of which show good cultivation and a good selection of seed.

The largest and best collection entered by any one person was by Samuel A. Merrill, of Salem, to whom the Committee award the first premium of $6.00.

The next best collection was by Joseph S. Howe, of Methuen, to whom is awarded one of the copies of Harris' Work on Insects placed at the disposal of the Committee. The other copy they award to George L. Davis, of North Andover.

To Luther Cunningham, of Andover, for a large and choice variety of potatoes and other vegetables, they award $3.00.

To Joseph F. Ingalls, of Methuen, $2.00.

To G. S. Phippin, of Methuen, $2.00.

To George B. Loring, of Salem, for very choice and excellent specimens of Corn, $1.00.

To J. Pickering Putnam, of North Andover; Andrew Curtis, of South Danvers; William Merrill, of Andover; Charles Abbott, of Andover; E. Francis Holt, of Andover; $1.00 each.

To Moses B. Abbott, of Andover, for a Crook Neck Squash of good weight and in a perfect state of preservation, grown by him in 1861, $1.00.

Nearly all the vegetables presented were worthy of notice, especially a basket of Garner Chilian Potatoes, grown by Charles Smith, of Methuen, yielding at the rate of a bushel to eight hills, and said to be of excellent quality for table use.

There was a large and fine collection of garden and farm seeds entered by John S. Ives, of Salem, for which the Committee would have awarded a gratuity had they felt authorized so to do; but feeling that seeds merely did not come under the head of vegetables, they merely suggest whether, in future, it may not be desirable that this Committee award

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premiums for the best and largest varieties of seeds producing vegetables?

Daniel Saunders, Jr., Aaron Dodge, Wm. Sleeper, for the Committee.

COUNTERPANES, CARPETINGS AND RUGS.

Report of the Committee on Domestic Manufactures, Carpetings and Rugs:

RUGS.

The Committeee award the first premium to Mrs. Thomas Ayrey, of Lawrence, for two best Rugs, $3.00.

To Mrs. Mary A. Gould, of Lawrence, for one Rug, second premium, $2.00.

To Abigail McNamara, of North Andover, for fire Rugs, a gratuity of $1.50.

To Mrs. Jonathan Berry, of Middleton, for one Mat, a gratuity of $1.00.

To Lucy Allen, of Lawrence, for one Rug, a gratuity of $1.00.

COUNTERPANES.

The Committee award to Mrs. Alva Bennett, of Methuen, for one Silk Quilt, the first premium of $4.00, and for two Wrought Ottomans a gratuity of $1.25.

To Sopronia Fox, for one Quilt, the second premium, $2.00.

To Mrs. John C. Dow, of Lawrence, for two Quilts, a gratuity of 50 cents.

To. A. G. Ellenwood, for one Quilt, a gratuity of $1.

To Mrs. C. Bailey, a lady of 85 years of age and living in North Andover, for one quilt, a gratuity of $1.00.

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To Josie Cummings, of Lawrence, for one Silk Quilt, a gratuity of $1.00.

SOCKS AND MITTENS.

To Eunice Andrews, of Boxford, for best Socks and Mittens, a gratuity of 75 cents.

To Mrs. J. F. Gleason, of Lawrence, for two pairs Men's Socks, a gratuity of 50 cents.

To Clara Archibald, of Lawrence, for one Silk Toilet Table Cover, a gratuity of 50 cents.

CARPETINGS.

The only Carpetings presented were the Printed Carpetings displayed by the Berkley Mills, of Lawrence, to which the first premium is awarded, $5.00.

BALMORAL SKIRTS.

To J. D. Barry, of Lawrence, for handwork Balmoral Skirt, a superior article, $3.00.

To Mrs. N. Ambrose, of Lawrence, for one Frame Coin, the Committee award a gratuity of $1.00.

The Washington Mills are deserving of very great credit for their beautiful display of Cloakings, Sackings, Coatings, Cassimeres, Beavers, Flannels, Piano Covers, Table Covers, and Long and Square Shawls, all of their own manufacture. This is probably the best display of goods of this class ever exhibited at any Fair in Massachusetts.

The Pacific Mills made a very fine display of Robe de Chambres, being the best printed goods of the kind ever made in this country. Also, 27 pieces de Laine and Armures; 8 pieces of Coburgs. The Coburgs manufactured by the Pacific Co. are the best, if not the only goods of the kind made in this county, and, in the judgment of the Committee, will compare favorably with the imported goods.

The Everett Mills made a very excellent display of extra

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quality Shirting Flannels, Robroy Plaids, Fancy Shirtings, and Summer stuffs, which, perhaps, are not excelled by any made in New England.

The Pemberton Mills exhibited a most excellent display of Cotton Cassimeres, Canton Flannels, Fancy Shirtings, Repellents, Fancy Wove Cloaking, etc. The Canton Flannels and Fancy Shirtings are specimens of the highest art attained in manufactured goods. The Fancy Wove Cloaking is entirely new, and is designed for next spring's sales.

Although many of the goods exhibited by each of the Corporations of which mention is made, are deserving of the highest premiums, no provision for such having been made by the Society, the Committee are unable to express their appreciation in any better way than in words.

For the following miscellaneous articles, which were entrusted to this Committee for examination, we award the following gratuities:

Allen & Leland, of Lynn, for superior shoe knives, a gratuity of $1.00.

Three Sewing Machines exhibited by E. Messer of Methuen, and four machines by M. B. Kenney of Lawrence, and three by Howe & Bugbee of Lawrence, are worthy of special notice.

For one Milk Weed Pillow exhibited by Mrs. M. Wardwell, of Methuen, the Committee award a gratuity of 75 cents.

The Ranges exhibited by L. A. Bishop, and manufactured by Barstow, were, in the judgment of the Committee, the best of the kind on exhibition. Also, one superior Kitchen Stove, exhibiting the best style of casting and finish, for which we award a gratuity of $1.50.

D. N. & C. M. Martin, for superior case of Plated and Bronzed Ware, Parlor and Kitchen Stoves, a gratuity of $1.50.

To J. M. Robbins, for Magee Stoves exhibited, a gratuity of $1.00.

To J. C. Dow & Co., for three cases of Blank Books, of

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his own manufacture, the Committee recommend a gratuity of $2.

John Medina, for three cases of Hair Work, a gratuity of $1.00. The exhibition by Mr. Medina was very fine. and did its owner great credit.

Brigham's Patent Steam Condenser and Pipe Drainer exhibited by Charles Ward & Co., of Lawrence, is, in the opinion of the Committee, the best thing, for what it is intended, ever invented, and we award its owner a gratuity of $3.00.

The Committee would recommend that, at future Fairs, greater care be exercised in the *entering* of articles, and that more full descriptions be required of those entering them, that the Committee's work may be lessened and greater justice be done to all parties concerned.

A. W. Stearns, James Flint, Sumner Southwick, Alfred Kitteredge, Geo. W. Hills, Committee.

FANCY WORK, &c.

The Committee on Fancy Work, and all other articles not included in other schedules, were all present at the calling of the roll upon Tuesday. They entered immediately upon the duty assigned them and attended to it for six consecutive hours. They examined a great variety of articles, presented by over two hundred contributors. They awarded but two premiums, there being but two displays of articles for which they were authorized to award premiums, each in the judgment of the Committee worthy of the first premium in its class. Fifty dollars was at the disposal of the Committee to be awarded in gratuities.

They have awarded gratuities to eighty-eight contributors, and were only restrained from awarding larger sums, and more

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of them, by lack of funds. They have had more regard to articles that are useful than to those that are simply ornamental or ingenious, and have in several cases where the articles seemed to merit it, bestowed several gratuities to the same class without attempting to decide which of the class was most deserving.

They have given but one gratuity to the same individual, although more than one article deserving it has in many cases been presented by one person. They have, so far as they have known, confined themselves within the rules of the society requiring articles for premium and gratuities to be manufactured within the county and since the last annual exhibition,—were it not for this rule the Committee would have been glad to have awarded a gratuity for a Worsted Tidy, made by Ida B. Hill, of Lawrence, before she was nine years old, and especially glad to have awarded a larger gratuity to Alice Heath, of Bunker Hill, Charlestown, for a shirt made by her own hands and sent to one of the soldiers of our gallant army, and which was presented to Serg. E. K. Boardman of Lawrence, (being severely wounded), now in the Campbell Hospital, in Washington, the shirt having this inscription :

"The fingers of little Alice Heath, aged five years, of Bunker Hill, Charlestown, Mass., sewed every stitch in this her second shirt." "Soldiers! she loves you."

The awards were as follows :

Mrs. J. C. Wadleigh, Lawrence, best display of Bonnets, 1st premium, $4.00 ; Ella J. Cowen, Haverhill, best specimen of work by a child under 12 years of age, $3.00.

GRATUITIES.

H. A. Chase, Lawrence, Leather frame, 50 cents ; Mrs. N. Ambrose, Lawrence, Amaranth Work, 50 cents ; M. Jennie Wells, Lawrence, Embroidered Gloves, 50 cents ; N. J. Phillips, Lawrence, Carriage Blanket, &c., 50 cents ; Mrs S. W. Hopkinson, Bradford, Child's Carriage Blanket, &c., 50 cents;

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Joseph S. Taylor, North Andover, Fancy Work, (the Lord's Prayer) 50 cents; Mrs. L. Beach, Lawrence, 1 pair Pillow Cases, 50 cents; A. S. Marland, Andover, Pictures, 50 cents; Carrie Archibald, Lawrence, Toilet table Cover, 50 cents; Mrs. S. J. Richardson, Methuen, Feather Cape, 75 cents; Mrs. M. P. Keller, Worsted chenille work, 50 cents; Eva A. Tufts, Middleton, Fancy House, 50 cents; Mrs. J. W. Porter, Lawrence, Shell Frame, &c., 50 cents; John C. Gilman, Lawrence, Box and Spool Stand, 50 cents; Mrs. Rachael Parrish, 84 years of age, Lawrence, Straw Basket, 50 cents; John McCullough, Lawrence, Fancy Basque, 50 cents; Miss H. L. Ambrose, Lawrence, Wrought Skirt, 75 cents; Carrie Furbush, Lawrence, Wrought Skirt, 50 cents; Martha Kendall, Methuen, 2 Tidy mats, 50 cents; Mrs. S. M. Davis, Lawrence, Child's Frock, Cape, &c., 50 cents; Mrs. A. J. Church, Lawrence, Embroidered Blanket and Dress, 50 cents; Lizzie S. Jenkins, Lawrence, Ottoman and Tidy, 50 cents; Miss J. M. Haynes, Lawrence, Worsted Chain Crickets, &c., 75 cents; Mrs. W. H. Haskell, West Amesbury, Carriage Blanket, 50 cents; Mrs. A. G. Davis, Lawrence, Carriage Blanket, 50 cents; A. B. Kenney, Lawrence, 4 Crayon Pictures, 50 cents; A. C. Rollins, Methuen, Oil Painting, 50 cents: Ada Boynton, Lawrence, Oil Painting, 50 cents; Mrs. Nancy Simons, Lawrence, Worsted Picture, 50 cents; Emma A. Banfield, Bradford, best Hair Work, $1.00; Eliza C. Ham, Lawrence, Hair Work, 50 cents; Mary A. Fales, Methuen, Hair Work, 50 cents; Mrs. E. N. Clark, Lawrence, Wax Flowers, 75 cents; Judith C. Watson, Lawrence, Wax Flowers, 75 cents; Mrs. L. Johnson, Lawrence, Wax Flowers, 75 cents; Byron Truel, Lawrence, Ladies' Cloak, 75 cents; A. Sharpe, Lawrence, Ladies' Cloak, 75 cents; Emma Gage, Methuen, Wall Basket, &c., 50 cents; Anna L. Hager, Worsted Tidy; Mrs. I. W. Truel, Worsted Undersleeves; A. B. Campbell, Hair Work; Mary A. Winch, Sofa Pillows; E. G. Meserve, Feather Wreath; John W. Foster, two Hassocks; Mary Furbush, Sofa Pillow Covering; Mary L. Saunders, Sofa Covering;

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Phebe D. Emerson, Sofa Covering; Mrs. S. E. Whiting, Ottoman Covering; Mrs. I. B. Cobb, Worsted Slippers; Mrs. D. H. Freeman, two Ottoman Covers; Martha Allison, Tidies; Mrs. S. Dyer, Cone Basket, &c.; Helen Huntoon, Toilet Cushions; Mrs. H M. Whitney, Sofa Pillow; Mrs. Henry Barton, Sofa Pillow; Mrs. H. O. Bailey, Bead Lamp Mat — 50 cents each; Josie Cummings, 5 pieces Worsted Work; Abby A. Parsons, Worsted Work — 75 cents each — all of Lawrence. Mrs. Jacob Emerson, Tidy Ottoman, &c.; Mrs. E. Derby, Watch Case and Cushion — 50 cents each; Maria A. Stevens, best specimen of Cone Work, 75 cents — all of Methuen. Ivory P. Hanson, Lawrence, Fancy Sleigh; Mrs. J. Chadwick, Bradford, Cards; W. H. Plummer, Lawrence, Pictures; Mrs. M. Wardwell, Methuen, 70 years of age, Sofa Cushion; Mrs. J. R. Rollins, Banner Screen; A. G. Cummings, Lawrence, Bead Work; Josie Cummings, Lawrence, Bead Work — each 50 cents. Diantha L. Fisk, Lawrence, box of Wrought Handkerchiefs and Flannel, $1.00; Mrs. L. A. Thissel, Lawrence, Embroidered Flannel Skirt, &c.; Mrs. H. W. Chillis, Lawrence, Collar; L. D. Marland, Andover, Collar, Sleeves, &c. — 50 cents each. Mrs. J. F. C. Hayes, Lawrence, Fruit Doilies, 75 cents; Esther A. Clark, Lawrence, Wrought Skirt, &c., 50 cents; Alfred Hall, Lawrence, Photographs, $1.00; Yeaw & Lufkin, Lawrence, Photographs, $1.00; Potter & Reed, Lawrence, Photographs, 75 cents; Albert Emerson, Lawrence, Horse Shoes, 50 cents; Mrs. John Satterson, Lawrence, Fancy Work, 50 cents; J. Pillsbury, Jr., Lawrence, Parlor Set, $1.00; Hattie A. White, Methuen, Worsted Cape; Mrs. R. A. Howe, Lawrence, Fancy Chair; Mrs. A. C. Perkins, Lawrence, Ottoman Cover; Mrs. Mary Bickford, Lawrence, aged 94 years, Pillow Case; Mrs. Geo. Foote, Methuen, Carriage Mat — each 50 cents. Mrs. W. Davis, Lawrence, Afghan, $1.00.

G. E. Hood, H. Cummings, D. Stiles, R. Tenney, J. B. Clement, T. P. Gentlee, G. Farnsworth, Committee.

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GRAIN CROPS.

The Committee on Grain Crops award to Ben. Perley Poore, of West Newbury, for his Corn Crop, the first premium of $10.00.

To S. A. Merrill, of Salem, for his Wheat Crop, the first premium of $8.00.

Geo. B. Loring, Chairman.

STATEMENT OF BEN: PERLEY POORE.

Hon. George B. Loring,

Chairman of Committee of Essex Agricultural Society.

The acre of land entered by me for premium is located on the top of "Indian Hill," where the aborigines are known to have planted the same crop, using the shoulder blades of the moose and sharpened sticks for the preparation of the land, and "hilling" with clam-shells. The soil is a gravelly loam, and water is found at the distance of fifteen or twenty feet below the surface of the ground, although the top of the hill is upwards of two hundred feet above the level of the nearest running water.

The crop of 1861 was grass, but hardly worth cutting, the land having been used as a parade-ground for several years.

No manure had been applied since 1846–7, when two crops of Ruta Bagas were raised on it.

It was ploughed once, early in the spring, eight inches deep and harrowed — cost $6.00.

The previous fall twelve loads of manure, decomposed in in the open yard, had been hauled up and piled on the ground. Estimated value, $24.00.

The corn was planted May 8th–12th. The ground was holed with a hoe — the manure was put in the holes, and the corn planted was covered with the hoe. Five kernels were planted in each hill, amounting to about 12 quarts, costing 50 cents. Cost of planting, $4.00.

When the corn was about four inches high, it was ploughed

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lightly back and forth, and hoed. When about twelve inches high, it was ploughed with a double mould board plough and hoed. When it commenced to tassel, it was hoed. Cost of cultivation, $11.00.

A portion of the stalks were cut on the 17th of September, when, at the request of the Committee, the remainder was cut at the root, and stooked, that the two methods of harvesting might be tested. No definite results could be obtained, however, as rainy weather followed, the stooks were blown over, and it became necessary to husk the corn stooked at once, to prevent its moulding. It was also impossible to keep as accurate an account of the weight of the stover and of the weight and shrinkage of the corn as I had contemplated.

The weight of corn in the ear, as nearly as I could ascertain, was 5,906 pounds, producing over 68 bushels of shelled corn. The stover was unusually abundant, and more than repaid the cost of harvesting and husking.

The crop was cultivated by David Rogers, (who raised a crop of corn for my great grandfather on the same land nearly half a century ago,) and he is entitled to any credit for its cultivation.

BEN: PERLEY POORE.

Indian Hill Farm, West Newbury, Nov. 1, 1863.

The above statements are correct to the best of my knowledge.

WM. H. MORSE,
Foreman Indian Hill Farm.

West Newbury, Nov. 1, 1863.

STATEMENT OF SAMUEL A. MERRILL.

The land on which the crop of Wheat which I enter for premium grew, measures one acre.

The crop of 1862 was cabbages, manured with six cords of compost.

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The crop of 1863 was potatoes, manured with six cords of compost — the soil being a dark heavy loam.

It was ploughed eight inches deep once, for the wheat crop, and harrowed at a cost of $4.00 — no manure being used.

The seed (bearded wheat) was sown May first, at a cost of $7.50 — and the crop was cradled the last week in August.

Cost of harvesting, storing and threshing, $8.00. Amount of straw, 2 tons. Amount of wheat, fifteen hundred pounds.

ROOT CROPS.

The season just closing has been a remarkable one in some respects, as affecting Root Crops.

The potatoe crop, for instance, was at one time considered almost a failure. But the early crop sold for so large a price as to make it, with but few exceptions, a remunerative crop. And some fields of later ones, that were given up by the owners as past hope, by reason of the severe drought, have, at the close of the season, produced large crops.

We learn, however, by Reports from the Agricultural Department at Washington, that the entire crop in the United States is somewhat smaller than last year.

The onion crop has proved a success, both as to the quantity grown and the price at which the crop has been sold. Some fields were injured by the drought, but the ravages of the maggot were not very marked.

The carrot crop is very good, and they command a higher price than ever before, being now worth $20.00 per ton in market.

The cabbage crop, which was much injured in the earlier

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part of the season by the louse, has proved, on the whole, a good and remunerative crop.

The squash crop has been an entire success; and we would say that we never saw finer squashes than the Cambridge Marrows, shown us by Mr. S. A. Merrill on the Derby Farm. It would be of great advantage to the farmers generally — those who do not pay particular attention to the raising of vegetables for the markets — to procure such seeds as they wish to use of those who are known to have the finest vegetables grown. And we were reminded of this by the evident superiority of this particular family of the Marrow, when compared with others of the common variety planted by him in the immediate vicinity.

Many market gardeners have this season made a clear profit of from two to four hundred dollars per acre on the entire breadth cultivated; and, as a consequence, lands, in some parts of the county, in a condition for vegetable culture, were never in such demand and at so high a price.

In fact, it may well be questioned, whether the tobacco culture on the lands in the Connecticut Valley has been a greater source of income to the cultivators of that section, than the culture of vegetables has been to those in Marblehead, Danvers and other towns in this county, who have found their principal market in the city of Boston.

We award to Samuel A. Merrill, of Salem, for his crop of Cabbages, the first premium of $8.00.

To Hiram A. Stiles, of Middleton, for his crop of Summer English Turnips, the first premium of $8.00.

Charles P. Preston, Levi Emery, James M. Perry, Wm. Little, Committee.

STATEMENT OF S. A. MERRILL.

The land on which the crop of Early Cabbages that I enter for premium, grew, measures 160 rods.

It was in grass in 1862, no manure being applied.

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In 1863 a crop of sweet corn was raised on it, using a compost at the rate of four cords to the acre, in the hill.

The soil is a dark heavy loam, clay sub-soil, ploughed once eight inches deep—harrowed once and furrowed. Cost, $4.00. Six cords of compost of barn yard manure, night-soil and muck, were applied in the hill.

The seed was planted in hot beds March 20th, transplanted middle of April, one plant in the hill, of the Early Oxheart variety. Cost, $10.00

Cultivated and hoed twice. Cost, 9.00

Harvested and marketed from June 20 to Aug. 1. Cost of harvesting, 10.00

Cost of marketing, 35.00

The crop sold for $450.00

Entire cost, not including manure or use of land, 68.00

STATEMENT OF H. A. STILES.

The land on which the crop of Turnips which I enter for premium grew, measures two acres and twenty-nine rods.

The crop of 1862 was grass — no manure.

That of 1863, on one half the land, was grass, with no manure; on the other half turnips, with four loads manure, 125 pounds Coe's superphosphate, and one barrel fish guano.

The nature of the soil is a sandy loam and leachy. The grass land was ploughed April 13th, from seven to nine inches deep — the old land from six to eight inches.

It was harrowed twice with the iron tooth, and once with brush harrow. Cost of ploughing and preparation, $10.00

About nine loads of manure, of thirty bushels each, were spread upon the surface, — the new land receiving four loads of manure, together with 125 pounds of Coe's superphospate and one barrel fish guano, — the old land receiving five loads of manure and sixty pounds of Pacific guano, with 250 pounds

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of Rhoades superphosphate. Value of manure and fertilizers, $40.00.

The seed was sown at different times from April 16th to May 4th, in drills 16 inches apart, about one pound to the acre, of the strap leaved variety. Cost of seed and sowing, $3.50.

Hoed twice, the first time weeding and thinning out. Cost, $30.00.

The crop was taken from the ground from the 16th of June to the 22d of September, and prepared for the market by trimming and washing, putting six of uniform size in each bunch.

Cost of harvesting and marketing,	$140.00
Whole number of bunches sold, 9,025.	
Amount received for crop,	$459.00

My turnips steadily improved (as usual) in quality, and increased in quantity, until the 12th or 15th of July, when, owing to the severity af the drought, the growth became slow, destroying to a considerable degree their beauty and flavor. Yet, at no period of their growth did they become decidedly hard or corky, especially those that were entirely free from the ravages of the maggot and other insects, which embraced five-sixth (one-sixth being injured) of the entire crop. The turnips upon old land were generally less affected by the dry weather than those growing on the new land, owing chiefly to the decomposition of the *sod*, rendering the soil more compact. The question is sometimes asked, "Why not spread more manure upon your turnip land?" Repeated experiments in turnip raising have fully convinced me that more manure than is needed to insure a vigorous growth, tends to injure the quality of the turnip (if the soil is adapted to their growth,) and lessens the quantity, especially if the weather be dry. Had I spread 300 pounds of No. 1 Peruvian guano to the acre, the results would have been, during the month of June a large and rapid growth of *turnip tops*, after which, a *few days* even of great heat, would *injure* very much, if not destroy

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them beyond the hope of recovery. Hence the importance of using manure that does not *fire* or stimulate too rapidly.

IMPROVING WET MEADOW AND SWAMP LANDS.

The Committee on Improving Wet Meadow and Swamp Lands report:

There was but one entry made, and that was by G. A. Currier, of Middleton. On the fifth day of July two members of the Committee visited Mr. Currier, and viewed the premises, and afterwards another member of the Committee, and were much pleased with the faithful manner in which the improvement was made. Judging from the appearance of the land adjoining, previous to its being reclaimed it was not of much income. The first process in reclaiming was to open a ditch through the land, which ditch is not far from four feet and a half wide and three feet deep, and is walled up most of the way on both sides, with large stones, making permanent walls, and making a ditch of sufficient size to take the water at all seasons of the year. There are several covered drains leading into the main, which the Committee believe are sufficient to take all the water from the springs on the land. It was covered with gravel, and the surface was made very level. There was, at the time the Committee visited it, a large and valuable crop of grass, as will be seen by Mr. Currier's statement.

Among the requisites necessary in the Improvement of Meadow and Swamp Lands, in order to make it a success, the first is thorough drainage; the second is levelling the surface, which may sometimes be done in part with the harrow in the spring of the year, when the frost is coming out of

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the ground; and the next is to put on a sufficient amount of manure to kill the meadow grass and to afford a sufficient amount of nutriment for the seed to root and grow.

In the opinion of the Committee, Mr. Currier has made a very valuable improvement, — valuable to him and valuable to the public.

There is in the county of Essex a large area of Wet Meadow and Swamp Lands which, if reclaimed, would add much to the produce of our county, and would, in the opinion of the Committee, also add much to the health of the inhabitants in the locations where such lands are situated.

They award the first premium of fifteen dollars to Mr. Currier.

Joseph F. Ingalls, Robert A. Smith, Charles Nelson, Committee.

STATEMENT OF GEO. A. CURRIER.

The reclaimed land which I enter for premium consists of one and three-quarter acres. It produced nothing of value when I commenced. But a small portion was ever ploughed. Drains were laid thirty feet apart, and gravel carted on, the soil being a heavy muck, with clay sub-soil. The draining and covering with gravel cost 150 days' work. In 1861, eighteen cart loads of manure, mixed with same quantity of loam, valued at $45.00, were spread on. The whole amount of manure used in the four years, is valued at $51.00 — and the produce as follows:

1861.—First crop,	4 tons.		
Second "	2½ tons.	———	Total, 6½ tons.
1862.—First "	4½ tons.		
Second "	2½ tons.	———	Total, 7 tons.
1863.—First "	10,893 lbs.		
Second "	7,000 lbs.	———	8 tons 1,893 lbs.
1864.—First "	5 tons.		
Second "	3,500 lbs.	———	6 tons 1,500 lbs.

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Amount of hay in 1861–2.	13½ tons.
" " 1863–4.	15 tons 1,393 lbs.
Total in four years,	29 tons 393 lbs.

The only manure applied since 1861 was $5.00 worth spread in March, 1863.

CANKER WORMS.

The Committee on destruction of Canker Worms report:

That there has been no formal application, or entry made, for the Society's premium of $100.00, to the present time. The Committee have been shown several inventions for the destruction of the Canker Worm, all more or less effectual, but none coming within the Society's rule — "a cheap and effectual remedy for the ravages of the Canker Worm."

Mr. Ordway, of Ipswich, has invented a double circular rim, made of zinc, which is said to effectually resist the passage of the grub over or above it, but does not destroy it, or prevent a deposit of its eggs at the roots of the tree, where they may be hatched in the spring. The expense of Mr. Ordway's invention would, we fear, prevent a general application of the same, even if it were "an effectual remedy."

Mr. Alley, of Lynn, has invented a composition, which he has applied, among others, to the orchard of Gideon Lucy, numbering 275 trees. In this application a strip of hair cloth, about two inches wide, is first fastened round the tree, and above this a strip of enamelled cloth, six inches wide, is fastened, the lower edge of which is below the strip of hair cloth. The composition is then applied to the enamelled cloth, the glutinous nature of which being such as to prevent the passage of the grub over it; and the poison which it contains is said to kill many of the grubs before they touch the

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composition. Mr. Lucy applied the composition three times to his trees last fall, and three times a week, for about four weeks, in the spring, at an expense of fifty cents per tree, including labor, and the remedy appears to have been efficient, as his orchard produced, the present season, 350 barrels of apples, although the trees were so much eaten last season that many of them did not blossom the present year.

In conclusion, your Committee would recommend the Society to offer the premium, in the hope that some cheap and effectual remedy may, ere long, be discovered.

E. S. Williams, for the Committee.

FARMS.

The Committee on Farms submit the following report:

Although this Society has for a long time offered generous premiums for the best conducted farm, and in various ways tried to induce the farmers to enter their farms for premiums, yet for the last ten years we have had but few applications. Why is it so? Different reasons may operate to deter farmers from giving publicity to their operations. Modesty will prevent some from making a statement of their farm management to go before the public; others, who think their way of farming a little better than others', will not make a statement of their operations lest their neighbors should be made as wise as themselves. Some are deterred by the difficulty of making an intelligent statement of their operations; others, who may be willing to make a statement of their mode of raising some particular crop, do not like to have their whole management made public. Like the merchant who will tell of the profits of some particular transaction, yet he does not like to have his

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books exposed to the public gaze. Some are kept from presenting their farms by the remarks that are usually made about a premium farm. We think there is, to some extent, a wrong impression in the community in regard to farms that receive premiums. We ought not to expect that they all should be perfect. The object of the Society in publishing the detailed management of farms, is not to present perfect models, to be implicitly followed in every respect, but to give the public that information which will enable farmers better to manage their own farms. We may sometimes be taught our own failings, by having the errors of others brought to our notice. The farmer who gives a true and full statement of the expense and income of his farm, is doing more to promote the cause of agriculture than he who gives only an *estimate* of what his farm produces and withholds the expenses.

We think that one reason why so little interest is now felt in this county in entering farms for premium, has grown out of the practice of those who have given statements of their farms, in keeping out of view their expenses and showing only their income. Every item of outlay and expense should be brought into the account before we speak of income. We have sometimes thought that it might be well for the Society to offer a premium for the best account of the expenses of conducting a farm, and say nothing of its income. In this way, perhaps, the public might learn that farming is not all income, as they might naturally infer that it is from the statements that are given.

We have had but one entry for the premium this year—that of S. A. Merrill, the occupant of the Derby Farm, in South Salem. We think this is the first time, in the history of this Society, that a person who has leased a farm has offered it for a premium.

The Committee visited the farm on the 11th day of July, at which time the grass was cut and most of it in the barn. We noticed the fields were very smoothly mown, and raked clean, and the hay appeared to be of good quality. The general ap-

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pearance of the crops indicated that they were well planted and cultivated thoroughly. The fences and buildings were in about as good condition as we expect to find on a farm that has been let for many years. Some of the Committee think the Society ought not to give a premium to any farm having such poor fences and buildings; others think the tenant could not be expected to expend much in repairing and keeping in order the fences, and if his management in other respects was judicious, he ought not to be deprived of the premium on account of neglecting that which belonged to the owners to do.

The farm was visited by part of the Committee on the 19th of September. At that time it looked as well as we expected to find it. Although we have seen some farms where the weeds were kept down better, yet we have seen many more that were not kept so clean. Mr. Merrill has given his attention mostly to raising vegetables for the market, and he has been very successful in this. This he thinks more profitable than making milk. Our impression is, that if his cows had received more of his attention they would have done better, though we think that milk can be produced cheaper farther from the city, where land is not so valuable. The yield of milk appears small to us, compared with the other products of the farm. According to his statement his cows did not average four quarts per day each for the seven best months of the year for making milk.

The Committee, when they visited the farm, were satisfied that a very large amount of produce was raised for the amount of labor expended; and when we notice the price at which the early vegetables were sold, we saw more distinctly than we ever realized before, the advantages which the market gardener derives from his hot beds.

We regret that Mr. Merrill, in giving his statement of the farm, has followed so far the example of those who, for the past few years, have made statements of their farming in our transactions. Where the hay and roots are consumed on the

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farm, in making up the account, these should not be reckoned. What we wish to know is the income.

In the Society's offer for premium on farms they say—"For the best conducted and most improved Farm, taking into view the entire management and cultivation, including lands, buildings, fences, orchards, crops, stock and all other appendages, with statements in detail relating thereto."

We think Mr. Merrill has improved the farm much, and for this improvement and his skill and success in raising vegetables for the market, we award to him the first premium of thirty dollars.

Wm. R. Putnam, for the Committee.

Estimate of receipts and expenditures on the farm, made up by the Committee from Mr. Merrill's statement:

The rent of the farm annually,	$1000.00
Part taxes,	30.00
Wages of 7 men at $20.00 per month for 7 months,	980.00
Board of 7 men at $4.00 per week,	840.00
Wages and board of two boys for 7 months,	306.00
Paid boys for weeding onions,	54.00
Wages and board of three men in winter,	564.00
Wages and board of milkman for one year,	448.00
Paid for Fish-Guano for manure,	140.00
Paid for grain,	600.00
Blacksmith's bill,	75.00
The interest on cost, and depreciation of hot beds,	60.00
Interest on value of carriages and farm implements,	180.00
Wear of same,	100.00
Interest on value of 32 cows at $40.00 each,	76.00
Interest on value of 5 horses at $150.00 each,	45.00
Interest on value of one pair of oxen,	12.00
Total,	$5,510.00

We think we can form a better estimate of the real income of the farm if we suppose it continued through the year as a

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milk farm. In that case we deduct the hay and roots from the income and add the sale of the milk at the rate of the other seven months. Taking these figures as our data, we find the

sales of farm to be	$11,649.49
And the expenses to be	5,510.00
	$6,139.49

Leaving six thousand dollars for the services and support of Mr. Merrill and his family.

STATEMENT OF SAMUEL A. MERRILL.

I offer for premium the farm known as the Derby Farm, in Salem, carried on by me during the past eleven years.

This farm is situated in that part of the city known as South Salem, and consists of 175 acres, of which 90 acres are in pasture, 20 acres in salt marsh, 45 acres in English grass and 20 acres in tillage. The English grass land has been laid down from one to ten years. The pasture has been in its present condition during the whole time I have occupied.

When I commenced on the farm, there were about ten acres in tillage. No part of it, however, had been used in the cultivation of onions, and was not put to this use to any considerable extent until I had been on the farm several years. The present year I have cultivated the tillage land about as follows:

Onions,	6 acres.
Potatoes,	5 "
Cabbages,	4 "
Tomatoes,	1 acre.
Sweet Corn,	1-2 "
Beets,	1-2 "
Marrow and Hubbard Squashes,	1 1-2 acres.
Miscellaneous vegetables,	1 1-2 "

Most of my turnips have been raised as a second crop.

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Included under the enumeration of English grass land is one acre laid down this year with wheat, and one acre with barley.

The live stock consists of five horses, 32 cows, one bull, one yoke of oxen, and from six to ten swine. With milch cows I have not been particular in regard to purity of blood, but have endeavored to obtain and keep the best grade and native stock.

Have generally found it most expedient to keep good, fair sized horses, weighing from eleven to twelve hundred. The amount of manure used annually upon the farm has ordinarily been about 150 cords. This has included that made by the live stock and considerable night manure hauled from the city, all composted with meadow mud from the salt marsh.

It may not be improper to mention, that my experience in the matter of top-dressing has led me to use, contrary to the general practice, green cow manure for this purpose.

To obviate the objection that such manure is apt to be so coarse as to be in the way of the scythe and rake, I have found it well to spread it in the month of March, and then, after the frost is fairly out of the ground, run over it with a brush harrow, which reduces it into such small particles as to render it in no way troublesome afterwards. I have generally drawn from the city thirty or forty cords of night manure. This I have mixed with the meadow mud and barn yard manure, all in one mass, in about equal portions of each, and forked it over twice at least, and in some years three times.

As to rotation of crops, I would say that I have found it inexpedient to attempt to raise either cabbages, beets or turnips successive years upon the same piece of land. But as to most other farm products, I have never been convinced that there was any necessity for alternating the crops—as, for instance, onions and carrots do not only as well, but much better when continued successively on the same land. Potatoes do well for four or five years, and, for aught I know, for a much longer time. The same can be said of corn and toma-

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toes. Squashes, however, ought not to be planted successively on the same land.

I have made it a point to get my seed into the ground at the earliest possible time in the spring, as my nearness to a good city market renders it expedient to give special attention to the raising of early vegetables. In order to avail myself of the the advantages of the earliest spring market, I found it profitable to start my plants, such as lettuce, early cabbages, tomatoes, etc., in hot beds. For this purpose I constructed, a few years ago, three ranges of beds, each 225 feet long, situated on a southerly slope and facing the south. They are made about a foot high and have a sash covering, and above this a trellis covering, stuffed with salt hay or straw. These hot beds are managed as follows :—In the fall I fill them with litter, house the sashes and lay down the trellis cover. This prevents the earth from freezing inside of the beds. About the first of March I take out the litter and put in about six inches of horse manure, and cover the manure with about four inches of soil, sow the seed and close the beds nights with both coverings. After the seed comes up I water the plants every other day, and keep the covers open in the day time to let in air, except when the weather is too cold for the plants. Transplant into the fields about the 15th of April. By this means I can get cabbages into the market by the 20th of June, and some exceptional years I have got them into Boston market as early as the 9th of June. The lettuce generally heads in the bed ready for market by the 15th of April. Tomatoes are generally ripe and ready for market from the middle of July to the 1st of August.

I have never tried the experiment of making butter, but have taken it for granted that it was more profitable to sell the milk, — especially in view of the fact that there was a good milk route connected with the farm when I commenced occupying. This route I have supplied ever since. During the summer the cows get their whole living in the pasture — no extra feed. In the autumn they have had the range of the

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mowing fields. In the winter they have generally had ten bushels of beets, with what English hay, black grass and rowen they would eat. The roots were fed out to them once a day only — mornings.

As to the farm buildings, I am not aware that there is anything peculiar about them worthy of notice, except that the cow stancheons are in a long, low-roofed L, running out from the barn. This I regard as a very good feature, as the hay, which is wholly kept in the main body of the barn, is by this means preserved from the deterioration, which the steam and heat of the cows cause.

The products of the farm for the past season, from April 1 to Nov. 1, 1864, are as follows:

Milk, 25,714 quarts, sold in the city at an average of 7 cents per quart,	$1,799.98
Cabbages, and cabbage plants sold, as pr. sales-book,	1,500.00
Onions, 2,500 bushels, at $1.75 per bushel,	4,375.00
Carrots, 20 tons, at $15.00 per ton,	300.00
Mangel Wurzel, 10 tons,	150.00
Flat Turnips, 500 bushels, at 25 cts. per bushel,	125.00
Ruta Bagas, 200 bushels, at 60 cts. per bushel,	120.00
Early Potatoes, Tomatoes, Lettuce and other garden sauce, as per sales-book,	2,202.51
Squashes,	50.00
English Hay, 80 tons, at $30.00 per ton,	2,400.00
Salt Hay, 20 tons, at $17.00 per ton,	340.00
Barley, 30 bushels,	45.00
Wheat, 25 bushels,	56.25
Rye, 20 bushels,	40.00
Wheat Straw, 2 tons,	30.00
Barley Straw, 2 tons,	30.00
Apples, 15 barrels,	45.00

Sales of Pork per year have been from seven to eight hundred pounds.

For seven months of the year I keep seven men and two boys; for the rest of the year, three men; and during the

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season for weeding onions, three extra boys. Besides this, one man is constantly employed on the milk route.

The land is exceedingly well adapted to the raising of hay and vegetables. The soil is somewhat varied in different localities, — in some places a dark loam upon a clayey bottom; in others, a light, warm, friable soil. It is also very well situated as to the influences of the sun and moisture, needing no draining, and still capable of resisting droughts.

Most of my marketing is in Boston, though the early vegetables are generally sold in Salem.

In giving this brief statement I have endeavored to confine myself to a plain and simple report of the character and capabilities of the Derby Farm; and if I have ventured upon giving any inferences, they are only such as are founded upon my own personal experience, and therefore have with me the force of actual facts.

MANURES.

The Committee have only one entry for the premium offered three years ago for an experiment, extending through three years, to determine the proper depth to cover manure to produce the best results. B. P. Ware, of Marblehead, has taken great pains in the experiment, as his statements will show, to arrive at a true result; and this result he finds to be about four inches. Of course, each one will form his own conclusions on reading these statements, and make all proper allowances for a difference of soils and seasons.

As the experiments made have involved a good deal of labor and patient noting of details, and as it is an experiment of the highest value to the farmer, we award him the first premium of $25.00.

Allen W. Dodge, William Little, Enoch Wood, Committee.

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B. P. WARE'S STATEMENT FOR 1862.

In competing for the premium offered by your Society for the best experiments on the application of manure—offered this year 1862—I selected an acre of land adjoining the lot upon which I commenced a similar experiment last year. The soil is a dark loam, nine inches deep, resting upon a gravelly subsoil—not leachy, but rather light—nearly level, with the exception of a gentle swell running across the lot. In April of 1861 four cords of compost manure were spread upon this land, and it was sown with oats. On the tenth of June, the oats having attained a large growth, they were turned under, and the land sown with carrots, but, owing to the dry, hot weather, the seed failed, and in July, I sowed flat turnips, which grew finely and yielded a large crop.

On the fourteenth of May last, I divided the lot into five equal parts, and manured four of them with compost manure at the rate of ten cords per acre, which manure was taken from a heap containing sixty-five cords, all forked over and worked together. I like to compost my manure all in one heap (except some special manures,) as fermentation is more rapid, and I think there is less waste than in several smaller heaps.

Said compost heap was composed of meadow mud, sea manure, and barn manure, the whole mass drenched with eighteen cords of night soil. The same quantity of manure was applied to each lot, and it was ploughed in eight inches in lot No. 1; four inches in lot No. 2; harrowed in in lot No. 3, and spread on the surface of lot No. 4 after planting; while none was applied to lot No. 5. The directions of the circular were followed to the letter.

May 17th I planted nine rows of King Phillip corn in each lot, three and a half feet apart, and hills in the rows the same distance — six kernels in a hill, and covered the seed one and a half inches deep. The corn was horse hoed, or cultivated, three times during the season, and hand-hoed twice — not a

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weed was allowed to grow. October 6th the corn was cut up close to the ground and stooked up. November 3d, being well dried and in good order, I had the whole weighed and stored in the barn, where it was husked within a week and carefully weighed.

Lot No. 1 produced 3635 pounds of unhusked corn; 1462 lbs. of sound ears; 39 lbs. of unsound ears; 2134 lbs. stover.

Lot No. 2 produced 3715 pounds of unhusked corn; 1608 lbs. of sound ears; 29 lbs. of unsound ears; 2078 lbs. stover.

Lot No. 3 produced 3280 pounds of unhusked corn; 1462 lbs, of sound ears; 44 lbs. of unsound ears; 1774 lbs. stover.

Lot No. 4 produced 2980 pounds of unhusked corn; 1284 lbs. of sound ears; 32 lbs. of unsound ears; 1664 lbs. stover.

Lot No. 5 produced 2120 pounds of unhusked corn; 902 lbs. of sound ears; 40 lbs. of unsound ears; 1178 lbs. stover.

One hundred pounds of ears yielded seventy-six and a half pounds of shelled corn. One bushel measure of shelled corn weighed fifty-seven and a half pounds.

From the above data it may be seen that the several lots produced, of the several kinds of products, at the rates per acre as given in the following table:

	Shelled corn. *No. of bushels.*	Stover. *No. of pounds.*	Unsound corn in ear *No. of pounds.*
Lot No. 1,	97	10670	195
" " 2,	106½	10390	145
" " 3,	97	8870	220
" " 4,	85½	8320	160
" " 5,	60	5890	200

A SYNOPSIS OF THE WEATHER.

	First Third.	*Second Third.*	*Last Third.*
MAY.	Dry.	Dry.	Dry.
JUNE.	Moist.	Dry.	Moist.
JULY.	Moist.	Moist.	Moist.
AUGUST. . .	Moist.	Moist.	Moist.
SEPTEMBER.	Dry.	Moist.	Dry.

Marblehead, Nov. 14th, 1862.

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B. P. WARE'S STATEMENT FOR 1863.

The acre of land upon which was commenced the experiment on the application of manure last year, I this year—May 1st—ploughed eight inches deep; then sowed upon the furrow two and a half bushels wheat, after soaking two hours in strong brine, and ploughed it in with Knox's Gang Plough, four inches deep; then sowed three pecks red top and twelve quarts of Herd's Grass Seed, together with seven pounds of Clover Seed; then dragged it smooth.

The severe drought in June nearly ruined the crop, as the result will show. August 15th it was cradled and stooked up.

Lot No. 1 produced 74 lbs. of clean wheat, and 266 lbs. of straw. Total, 340 lbs.

Lot No. 2 produced 77 lbs. of clean wheat, and 228 lbs. of straw. Total, 305 lbs.

Lot No. 3 produced 79 lbs. of clean wheat, and 221 lbs. of straw. Total, 300 lbs.

Lot No. 4 produced 69 lbs. of clean wheat, and 201 lbs. of straw. Total, 270 lbs.

Lot No. 5 produced 55 lbs. of clean wheat, and 115 lbs. of straw. Total, 170 lbs.

SYNOPSIS OF THE WEATHER.

	First Third.	*Second Third.*	*Last Third.*
MAY.....	Wet.	Moist.	Dry.
JUNE.....	Dry.	Moist.	Dry.
JULY.....	Dry.	Wet.	Wet.
AUGUST..	Wet.	Moist.	Moist.
SEPTEMBER.	Moist.	Moist.	Moist.

Marblehead, Nov. 6th, 1863.

B. P. WARE'S STATEMENT FOR 1864.

The result of the third years' crop grown upon the land to which your attention has been called for the two preceding years, is as follows:

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The garss was cut June 25th and each lot weighed June 27th, after being well cured.

Lot No.	1	produced	435	pounds of	hay
" "	2	"	435	"	"
" "	3	"	455	"	"
" "	4	"	475	"	"
" "	5	"	290	"	"

The extreme drought of June caused the crop to be very small, although I suppose the relative product of the several lots was not materially changed thereby.

This closes the third experiment of three years each that I have made upon the application of manure with regard to ascertaining to what depth manure shall be covered to produce the most profitable results. I have endeavored to be exact in all of the experiments, and have been a close observer of the results; and from them I am satisfied, that with the various crops, and taking one year with another, that to cover manure about four inches deep will yield better results than any other depth, and better cover it less than more. I feel that these experiments have been of great value to me, and trust that they may be promotive of the cause of agriculture.

A SYNOPSIS OF THE WEATHER.

	First Third.	*Second Third.*	*Last Third.*
MAY.....	Moist.	Moist.	Moist.
JUNE.	Moist.	Dry.	Very Dry.
JULY.	Dry.	Dry.	Moist.
AUGUST. ..	Moist.	Moist.	Moist.
SEPTEMBER.	Moist.	Moist.	Moist.

Marblehead, Nov. 1st, 1864.

FOREST TREES.

The Essex Agricultural Society, for wise reasons, many

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years ago, instituted a Committee, and offered large premiums for the culture of Forest Trees, but with very little effect, so far as raising them from the seed is concerned. Some experiments were made, and premiums were awarded, but from repeated observation of plantations on which they were paid, very small encouragement was derived for the payment of premiums, or even for a continuance of the offer.

But we are happy to find that raising Forest Trees from the seed, is a more promising business than we had been led to consider it, and it is a satisfaction to know that we have in the county one or more forests of cultivated trees, that are already past the period of experiment, and taking rank with ancient and natural forests.

No claim has been presented for the premium offered within the last year, but a forest of cultivated trees has been brought to the notice of the Committee, which affords a complete demonstration of the practicability, and, also, we have no doubt, of the utility, of raising any and all kinds of forest trees from the seed.

Soon after the annual Cattle Show at Lawrence, the Committee on forest trees, with the President and Secretary of the Agricultural Society, were favored with an invitation to visit the Indian Hill farm, in West Newbury, by the enterprising proprietor, B. P. Poore, Esq., the well known *Perley* of the Boston Journal, and spent a most pleasant and useful "October day" in that interesting locality.

The invitation and visit had special reference to the cultivated forest trees, which already adorn the sides and summit of "Indian Hill," but no person of science and taste can spend a day there without being intensely interested in a great variety of other subjects of antiquity and literary curiosity. The house, the office, the barn, the out-houses, the farming-tools,—all afford most interesting subjects of curiosity and study, especially the office, which is a most interesting store-house of books, manuscripts, autographs, arms, and antiquities of all ages and many nations, well worthy to have entirely averted

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the attention of the Committee; but, remembering that we were agriculturalists for that day at least, we looked away from these interesting subjects of intense curiosity and turned our attention to the farm and the trees.

If any doubts previously existed whether Oaks and Walnuts, and other Forest Trees, are susceptible of cultivation from the seed, they were entirely dispersed, for we found ourselves led through winding paths among a great variety of Forest Trees of twenty, thirty and forty feet in height, covering the northern declivity from the base to the summit of the hill which gives name to the farm, which was long since denuded of its primitive forest, and was, within the memory of the writer, a bleak hill top, where the naked soil was exposed to all the winds that blew.

Many acres of *Woodland*, sufficiently covered with this artificial growth, are there seen, fully occupying the ground and just as secure against any casualty by the elements, or the seasons, as any native forest; indeed, the natural intermixture of different kinds of trees, and the winding paths apparently conforming to the natural position of ground and trees, would lead any one to suppose themselves threading the intricacies of a native forest, planted by winds and squirrels, from the nuts and acorns of the former denizens of the soil.

We had encouragement that Major Poore, the proprietor, would give us a history of this plantation to incorporate into this report, but his frequent letters from the capital show that his attention is otherwise engaged at present; but as the plantation has been entered for a premium with the State Society, the public will in due time become possessed with a full history of this most successful experiment, upon the raising of Forest Trees, from the seed.

It should be understood that the Committee of this Society had no occasion to act officially upon this plantation, it being in other hands, but only most cheerfully embraced the opportunity offered by the polite invitation of Mr. Poore, to learn something which is of importance to every farmer, and the

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whole community; for, notwithstanding the observations of a former report upon the great facility with which Pine and Birch and Maple trees renew their growth when cut off and spread over adjoining fields and pastures, and the rather discouraging view then taken as to the prospect of raising Oaks and Walnuts and Chestnuts from the seed, we are now fully convinced that nothing is needed but to select suitable ground, clear it entirely of any previous native growth, place the seed in a natural manner in the soil, at a proper season, and wait the requisite number of years for these slow-growing trees, and we may have the most denuded districts of our State amply re-clothed with waving forests, and ultimately with timber for ships and for frames, which will three times outlast those now used of Pine and Hemlock.

We would not attempt to anticipate or supercede the account, which will in due time be given, of the origin and progress of this new-made forest, but merely afford the public intimation of what is doing in a most interesting branch of agriculture, and leave to Major Poore, in his own time to tell us *how it* is done; and we also wish to express our obligation to Mr. Poore and his family for their polite invitation and hospitable entertainment, which render the day one long to be remembered.

We close, as clergymen say, with a "single reflection," and that is, that we have seen the immense advantage of steadily pursuing the same object on the same spot for successive generations. Mr. Poore is not a *new man*, but enjoys, and most worthily succeeds, a race of ancestors who have cultivated the same acres, of whom, and of his father, many interesting relicts remain, of which the house and outbuildings, and the oldest portion of this plantation of Forest Trees, are the most interesting.

For the Committee—Jeremiah Spofford Chairman.

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REPORT OF COMMITTEE ON THE TREADWELL FARM.

The Committee on the Treadwell Farm would report:

Since the last annual report of the Committee, the farm has been occupied but a small portion of the time. On the 28th of December, 1863, a communication was laid before the Committee by Mr. Caldwell, the tenant, to the effect that, on account of unforeseen difficulties, it would be impossible for him to remain on the farm, on the terms of the lease, and proposing others. These propositions were not accepted, and Mr. Caldwell was instructed to purchase manure for the experiments of 1864. On the 4th of March, 1864, Mr. Caldwell again proposed to leave the farm, on terms not satisfactory to the Committee. On the 5th of May following, the Committee met again, and on application of Mr. Caldwell, voted:—

That an arrangement be made with Mr. Caldwell, in accordance with the following terms, viz:—The Society will pay Mr. Caldwell two hundred dollars, for the *betterments* allowed Mr. Brown, his predecessor; and Mr. Caldwell shall keep the sheep, given by Mr. Fay, during the summer, and return them to Mr. Fay in the autumn, according to the terms of the gift. The lease was canceled and Mr. Caldwell left the farm.

At a meeting of the Society held in Salem, June 20, 1864, a proposal to sell the farm was rejected, and Messrs. Dodge, Sutton, Colman and Rogers declined longer service on the Committee. Messrs. Joshua L. Newhall, Edward H. Little, Joseph Goodrich, and Warren Ordway were chosen to fill the vacancies.

On the 24th of June, the Committee met at the farm, chose Dr. Merriam Chairman, and voted to sell the standing grass, and the straw and hay now on hand, and to let the pastures for the season.

The experiment commenced last year was carried out by

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instructing the Chairman to procure the weight of the hay cut on the 2½ acres of land devoted to the experiment. Mr. Newhall and Dr. Merriam were appointed a sub-committee to commence an experiment in improving the shallow soil of the plain field, by spreading muck on the surface—the supply of muck being convenient in the adjoining meadow.

On the 21st of November the Committee met at the farm, and adjusted the account left by Dr. Merriam. A discussion arose with regard to leasing the farm for a term of years, but no conclusion was arrived at, and the Committee adjourned.

A vote having been past at the annual meeting of the Society in Lawrence, by which the disposal of the farm was referred to a Committee to report at the next annual meeting, it was considered inexpedient to adopt any system which might interfere with this arrangement. The plan hitherto adopted, of managing the farm under a long lease, has failed. It has been found impossible to institute experiments of any great value, with the mere amount of the rent of the farm; and it has been deemed inexpedient to devote the funds of the Society to such experiments. Nothing now remains but for the Society to determine whether, under the circumstances, the farm is a valuable piece of property for it to retain in its possession. An experimental farm without capital, seems to be rather a burden than otherwise. And in view of this, the Committee, to whom the farm has been entrusted, deem it expedient and proper, to protect the farm from strip and waste, during the ensuing year, and to avail themselves of the proceeds from hay, pasturage, &c., for the benefit of the Society; meanwhile awaiting the action of the next annual meeting.

Geo. B. Loring, Chairman.

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Dr. William Sutton, Treasurer, in account with the Essex Agricultural Society. Cr.

1863.			1863.		
October.	To balance of former account,	$27 46	Oct.	By amount awarded by the Trustees in 1863-4,	$652 25
	To receipts of Exhibition in 1863,	462 25		By Expense account as follows:	
	To State bounty,	600·00		Exhibition in 1863, $450 67	
	To Bank Dividends in October,	227 00		Printing, 273 70	
Dec. 12.	To New Members,	126 00		Secretary, 100 00	
1864.				Freight and Postage, 36 05	
April.	To Bank Dividends for April,	268 03		Record Book, 4 75	865 17
July.	To Essex Railroad Coupons for July,	40 32		Treadwell Farm,	200 00
	To 1st National Bank,	69 00		Colman Library,	32 50
	To Unclaimed Premiums,	49 00		Balance to new account,	119 14
		$1,869 00			$1,869 06

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FUNDS BELONGING TO THE SOCIETY.

16 shares	Warren Bank, cost	$1,595 40	Amount brought up,	$7,688 45
12 "	Exchange Bank, par,	800 00	Funds on hand in 1863,	7,664 77
14 "	1st National Bank, cost	1,402 66		
7 "	Mercantile Bank, par,	700 00	Gain in 1863,	23 68
6 "	Merchants' Bank, par,	300 00	The whole charge against the Farm, to this date, is	1,488 20
5 "	Village Bank, par,	375 00		
3 "	Salem Bank, par,	225 00		
15 "	Danvers Bank, cost	1,471 25		
Essex Railroad Bonds, par		700 00		
Cash on hand as above,		119 14		
		$7,688 45		

SALEM, November, 1864. E. E. WILLIAM SUTTON, Treasurer.

The above statement has been examined on the Dr. and Cr. side of the same, with the vouchers for all the disbursements, and I am satisfied that said account is correct, and truly represents the financial condition of the Society.

SALEM, 15th November, 1864. WILLIAM H. FOSTER.

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OFFICERS OF THE SOCIETY,

FOR 1864-65.

PRESIDENT.

JOSEPH HOW, of Methuen.

VICE PRESIDENTS.

LEWIS ALLEN, of South Danvers.
JEREMIAH COLMAN, of Newburyport.
DAVID CHOATE, of Essex.
ROYAL A. MERRIAM, of Topsfield.

TREASURER.

WILLIAM SUTTON, of South Danvers.

SECRETARY.

CHARLES P. PRESTON, of Danvers.

HONORARY TRUSTEES.

JAMES H. DUNCAN, of Haverhill.
JOHN W. PROCTOR, of South Danvers.
RICHARD S. FAY, of Lynn.
DANIEL ADAMS, of Newbury.
ALLEN W. DODGE, of Hamilton.

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TRUSTEES.

Hazen Ayer, South Danvers,
Jonathan Berry, Middleton,
Robert Brookhouse, Jr., Salem,
William Cogswell, Bradford,
Richmond Dole, Georgetown,
Francis Dodge, Danvers,
Thos. P. Gentlee, Manchester,
John M. Ives, Salem,
Joseph F. Ingalls, Methuen,
John B. Jenkins, Andover,
Joseph Kittredge, N. Andover,
John Keeley, Haverhill,
George B. Loring, Salem,
William D. Lamb, Lawrence,
Samuel A. Merrill, Salem,
Samuel Moody, W. Newbury,
Josiah Newhall, Lynnfield,
J. L. Newhall, Newburyport,
William Osborn, Lynn,
William R. Putnam, Danvers,
Isaac Patch, Gloucester,
Dan'l H. Stickney, Groveland,
Paul Titcomb, Newburyport,
Daniel G. Todd, Rowley,
E. S. Williams, Newburyport,
Enoch Wood, Boxford,
Benj. P. Ware, Marblehead,
John Whittredge, Hamilton,
Richard P. Waters, Beverly,
Abraham D. Wait, Ipswich.

The Trustees whose term of service will expire on the day of the annual meeting of the Society in 1865, are:

John Keeley,
Joseph F. Ingalls,
Daniel G. Todd,
Josepn Kittredge,
Thomas P. Gentlee,
Enoch Wood,
Jonathan Berry,
Francis Dodge,
Joshua L. Newhall,
Samuel A. Merrill,
William Cogswell,
Daniel H. Stickney,
George B. Loring,
Samuel Moody, Jr.,
Isaac Patch,
Richard P. Waters,
Abraham D. Wait,
William Osborn,
William R. Putnam,
William D. Lamb.

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NEW MEMBERS — 1864.

Henry Saltonstall, S. Danvers, Charles Shed, Methuen,
Joshua N. Kent, Newbury, John W. Frederick, Methuen,
Benj. F. Jenkins, Andover, Nathaniel White, Lawrence,
James C. Stimpson, Salem, Geo. W. Annis, Methuen,
Charles A. Colby, Lawrence, Moses T. Stevens, N. Andover,
Dan'l Saunders, Jr., Lawrence, Richard W. Ricker, Gloucester,
W. H. P. Wright, Lawrence, W. F. Gile, Lawrence,
Charles Webster, Lawrence, A. J. French, Lawrence,
Geo. S. Merrill, Lawrence, Frederick W. Nichols, Lynn,
Gilbert E. Hood, Lawrence, Jason H. Dana, Lawrence,
Jonathan Morse, Methuen, George W. Cabot, Lawrence,
Jacob Emerson, Jr., Methuen, Jacob A. Allen, Lawrence,
Edmund Gage, Boxford.

☞ Any citizen in the County may become a member by paying the sum of three dollars to increase the permanent funds of the Society, and he will receive a certificate of his membership from the Secretary. No fines or assessments are ever imposed. Members are entitled to the free use of the Library and a copy of the Transactions each year. All ordained ministers of the gospel residing in the County, and editors of newspapers, published therein, are entitled to the privileges of the Library.

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LIST OF PREMIUMS &C.

BULLS.

Willard Pike, Andover, Ayrshire, 1st premium,	$8 00
C. O. Cummings, Andover, Grade, 1st premium.	8 00

MILCH COWS.

Joseph S. Howe, Methuen, 1st premium,	8 00

HEIFERS.

Enoch T. Northend, Bradford, 3 years old, 1st premium,	6 00
Eben S. Poor, So. Danvers, 2 " " 1st "	4 00
A. C. Rollins, Methuen. 2 " " 2d "	3 00
Cyrus Blood, " yearlings, 1st "	3 00
Dan Weed, No. Andover, " 2d "	

Flint's Grasses.

CALVES.

Eben S. Poor, South Danvers, premium,	4 00

WORKING OXEN.

David Brickett, Haverhill, 1st premium,	10 00
Jacob Farnham, North Andover, 2d premium,	8 00
Nathaniel Little, Newbury, 3d premium,	6 00

WORKING STEERS.

John P. Foster, North Andover, premium,	6 00

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STEERS.

Enoch T. Northend, Bradford,	3	years old,	1st	prem.,	$6 00
George B. Loring, Salem,	2	" "	1st	"	5 00
Henry N. Hall, Methuen,	2	" "	2d	"	4 00

BROOD MARES.

William Lucy, Bradford, 1st premium,	10 00
Henry L. Hill, North Andover, 2d premium,	8 00

FARM AND DRAFT HORSES.

M. C. Andrews, Lawrence, 1st premium,	8 00
Geo. W. Annis, Methuen, 2d "	6 00

COLTS.

Joseph Chandler, Andover,	4	years old,	1st	premium,	7 00
M. C. Andrews, Lawrence,	3	" "	1st	"	6 00
Geo. B. Martin, Danvers,	2	" "	1st	"	5 00
Amos Poor, Haverhill, yearling,			1st	"	4 00

SWINE.

Daniel Carlton, No. Andover,	breeding sow,		1st	prem.,	5 00
Jas. H. Reynolds, " "	weaned pigs,		1st	"	5 00
Oliver P. Killam, Boxford	" "		2d	"	3 00

SHEEP—COARSE WOOLED.

Chas. Corliss, Haverhill, Cotswold Buck, 1st prem.,	5 00
Chas. Corliss, " " Lambs, 1st "	
	Harris's Insects.

SHEEP—FINE WOOLED.

Alfred M. Moore, W. Newbury, flock Merinos, prem.,	5 00
Geo. B. Loring, Salem, Merino Ram, premium,	5 00
Geo. B. Loring, " " Lambs, "	
	Harris's Insects.

POULTRY.

Robert Buxton, South Danvers, Brahmas, gratuity,	4 00

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Robert Buxton, South Danvers, Leghorns, gratuity,	50
John S. Ives, Salem, Brahmas, "	4 00
John Swinerton, Danvers, Brahmas, " Harris's Insects and	1 00
J. A. Allen, Lawrence, Doves, gratuity,	50

PLOUGHING — DOUBLE TEAMS.

Jacob Farnham, North Andover, 1st premium,	10 00
M. H. Poor, Joseph Goodrich, } West Newbury 2d premium,	9 00
Jaques & Little, Newbury, 3d premium,	8 00
G. W. Winslow, Marblehead, 4th premium,	7 00

PLOUGHING — SINGLE TEAMS.

Richard T. Jaques, Newbury, 1st premium,	7 00
John P. Foster, No. Andover, 2d "	6 00
Oliver P. Killam, Boxford, 3d "	5 00

PLOUGHING — HORSES.

M. H. Poor, West Newbury, 1st premium,	8 00
Moody Dole, Georgetown, 2d "	6 00
S. A. Merrill, Salem, 3d "	3 00

FARM IMPLEMENTS — GRATUITIES.

Amos Poor, Jr., West Newbury,	6 00
Whittemore, Belcher & Co., Boston,	4 50
Parker, Gannet & Osgood, Boston,	4 50
Abraham Patch, Jr., Danvers, water drawer,	1 00
H. W. Headon, Haverhill, washing and wringing machine,	1 00
A. S. Barker, Lawrence, pumps,	1 00
Saunders & Rasford, Boston, clothes drier,	50
Luther Thayer, Brighton, feed cutter,	50

BUTTER.

Sarah L. Ridgway, Newbury, 1st premium,	8 00

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Jonathan Berry, Middleton, 2d premium, $6 00
Sarah J. Searle, Methuen, 3d " Harris's Insects.

CHEESE.

Daniel Silloway, West Newbury, 1st premium, 8 00
D. P. Nelson, " " 2d " 6 00
Sarah L. Ridgway, Newbury, 3d " Harris's Insects.

FARMS.

Samuel A. Merrill, Salem, Derby Farm, 1st premium, 30 00

IMPROVING WET MEADOW AND SWAMP LANDS.

George A. Currier, Middleton, 1st premium, 15 00

EXPERIMENTS WITH MANURES.

Benjamin P. Ware, Marblehead, 1st premium, 15 00

GRAIN CROPS.

Ben: Perley Poore, W. Newbury, corn crop, 1st prem., 10 00
Samuel A Merrill, Salem, wheat crops, 1st prem., 8 00

ROOT CROPS.

Samuel A. Merrill, Salem, cabbage crop, 1st premium, 8 00
Hiram A. Stiles, Middleton, Summer English Turnips, 1st premium, 8 00

Awarded by the Committtee on			Vegetables,	20 00
"	"	"	Fruits,	83 25
"	"	"	Flowers,	22 00
"	"	"	Articles from Leather,	25 00
"	"	"	Counterpanes, Rugs, &c.	41 75
"	"	"	Fancy Articles, &c.,	56 25
"	"	"	Bread and Honey,	8 00
Total,				$647 25

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RECAPITULATION.

FARMS, &c.

Amount awarded to		Farms,	$30 00	
"	"	Improving Wet Meadows &c.	15 00	
"	"	Experiments with Manures,	15 00	
"	"	Ploughing,	69 00	
"	"	Farm Implements,	19 00	
				$148 00

FARM STOCK.

Amount awarded to		Bulls,	$16 00	
"	"	Milch Cows,	8 00	
"	"	Heifers,	16 00	
"	"	Calves,	4 00	
"	"	Working Oxen and Steers,	30 00	
"	"	Steers,	15 00	
"	"	Breeding Mares,	18 00	
"	"	Farm and Draft Horses,	14 00	
"	"	Colts,	22 00	
"	"	Swine,	13 00	
"	"	Sheep,	15 00	
"	"	Poultry,	10 00	
				$181 00

FARM PRODUCTS.

Amount awarded to		Corn Crop,	10 00	
"	"	Wheat Crop,	8 00	
"	"	Root Crops,	16 00	
"	"	Vegetables,	20 00	
"	"	Fruits, &c.	83 25	
"	"	Flowers,	22 00	
"	"	Butter and Cheese,	28 00	
"	"	Bread and Honey,	8 00	
"	"	All other objects,	123 00	
				$318 25
Total,				$647 25

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LIBRARY.

The LIBRARY is established at the Plummer Hall, Essex Street, Salem, where Members can obtain Books under the following

REGULATIONS:

1. Each member shall be entitled to take from the Library TWO VOLUMES, on signing a receipt for the same, and agreeing to be accountable therefor.

2. No member shall keep any book more than two weeks, after being notified (by the Librarian) that the same is wanted by another member.

3. All books belonging to the Library shall be returned on or before the 15th of November, in each year; that the same may be examined and the condition of the Library reported to the Trustees.

4. Any member who shall neglect or refuse to conform to these Regulations, shall thereby forfeit the privilege of taking books from the Library.

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